Release in full

[redacted]

History Epw #5

~~13 p~~

21p

'67 – 99

PRODUCTION DEPT
FILE COPY

MURPHY CORPORATION, ET AL.

EAST POPLAR UNIT WELL NO. 5

ROOSEVELT COUNTY, MONTANA

General File Copy

PRODUCTION DEPT
FILE COPY

MURPHY CORPORATION, ET AL.

EAST POPLAR UNIT WELL NO. 5

C SW SW Section 2, Township 29N, Range 51E
Roosevelt County, Montana

2114' K.B. Elevation

IN REPLY REFER TO:

3160
NTL-2B

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
MILES CITY DISTRICT OFFICE
P.O. Box 940
Miles City, Montana 59301

DEC 27 1985

Murphy Oil USA, Inc.
P. O. Box 547
Poplar, Montana 59255

RE: NTL-2B Approval for the East Poplar Unit

Gentlemen:

We have received your NTL-2B application dated 12/2/85, for the federal wells within the East Poplar Unit boundaries. BLM regulation requires NTL-2B approval for all wells within a federal unit. We will not require additional NTL-2B application for nonfederal wells within the unit, rather this letter will serve as NTL-2B approval for all existing wells in the East Poplar Unit. Produced water from the unit is approved for disposal into the following wells:

EPU SWD No. 1 EPA ID No. MTS21PE-0022,
EPU SWD No. 80 EPA ID No. MTS21PE-0026,
EPU SWD No. 8 EPA ID No. MTS21PE-0023,
EPU SWD No. 5 EPA ID No. MTS21PE-0021, and
EPU SWD No. 29 EPA ID No. MTS21PE-0024.

The following conditions apply to this NTL-2B approval for the disposal of produced water from the referenced unit:

Receipt of this approval does not constitute EPA approval for subsurface injection.

Upon receipt of EPA approval, a copy of the EPA permit must be submitted to this office.

All unauthorized discharges or spills must be reported to this office in accordance with CFR Title 40, Parts 124, 144, 146, and 147.

For future wells, complete NTL-2B applications will not be required. Instead, a Well Completion Report (Form 3160-4) should be used with a statement referring to NTL-2B approval and an explanation of the water source and disposal facilities (see example attached).

Wells outside the unit boundaries will require separate NTL-2B approval.

Any changes to these approved procedures must be submitted via Sundry Notice (Form 3160-5) prior to the commencement of operations.

If you have any questions, please contact Jamie Connell at (406) 232-4331.

Sincerely yours,

Asst. District Manager
Division of Mineral Resources

MURPHY
EXPLORATION & PRODUCTION COMPANY

POST OFFICE BOX 547
POPLAR, MONTANA 59255

February 8, 1999

Steven Sasaki
Board Of Oil and Gas Conservation
2535 St. John's Avenue
Billings, MT 59102

Re: Renewal of Pit Permits

Dear Mr. Sasaki

As the pit permits have now expired or are going to expire shortly we would like to request an extension of these permits until the lease is plugged and restoration work takes place. The following is a list of the pits we would like to have the permits extended on.

EPU No. 1-D	SE SE Section 30, T29N, R51E	Federal
EPU No. 5-D	SE SE Section 19, T29N, R51E	Federal
EPU No. 8-D	NW SE Section 10, T29N, R51E	Federal
EPU No. 80-D	SW NW Section 3, T28N, R51E	Federal
War Club No. 1	NW SE Section 11, T 29N, R50E	Federal

If you have any questions concerning these pits, please contact the Poplar Office for any addition information you might require.

Yours truly,

Raymond Reede

Raymond Reede
District Manager

sb
cc: Sidney Campbell, New Orleans, LA.
file

SPUR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

JUN 22 1999

Ref: 8ENF-T

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Raymond Reede, District Manager
Murphy Exploration & Production Company
P.O. Box 547
Poplar, MT 59255

Re: UNDERGROUND INJECTION CONTROL (UIC)
Notice of Noncompliance
Annual Monitoring Reports
Roosevelt County, MT

Dear Mr. Reede:

Enclosed are Annual Disposal/Injection Well Monitoring Report forms (EPA Form 7520-11) for the wells listed below for the year 1998. These forms should have been submitted by February 15 of this year. Pursuant to permit condition Part II, Section D you are required to submit Annual Monitoring Report forms. Each well requires a separate form, whether the well is active or temporarily abandoned. Please submit the forms within thirty (30) days of receipt of this letter.

Well Name	Permit Number
Mule Creek Allotted #1	MT2791-04292
Well #5-D	MT2021-00021
Well #80-D	MT2026-00026
Well EPU #1-D	MT2022-00022
Well EPU #8-D	MT2023-00023
Well Huber #5	MT2779-04278

Any person who violates any requirement of the Underground Injection Control (UIC) program is subject to enforcement action under Section 1423 of the Safe drinking Water Act. [42 U.S.C. Section 300h-2], et seq.. Enforcement may include civil penalties of up to $27,500 for each day for each violation and require compliance with all provisions of the Safe Drinking Water Act. If the violation is willful, criminal penalties may be prosecuted in accordance with Title 18 of the United States Code.

If you have any questions concerning this letter, you may contact John Carson at (303) 312-6203. Also, please direct all correspondence to the attention of John Carson at Mail Code 8ENF-T.

Sincerely,

Connally E. Mears

Connally E. Mears, Director
Technical Enforcement Program

Enclosures: EPA Form 7520-11

cc: Deb Madison
Environmental Program Manager
Assiniboine & Sioux Tribes
P.O. Box 1027
Poplar, MT 59255

Spike Bighorn, Chairman
Fort Peck Tribal Executive Board
Assiniboine & Sioux Tribes
P.O. Box 1027
Poplar, MT 59255

Sandra Brooks, Field Manager
Billings Field Office
Bureau of Land Management
810 East Main Street
Billings, MT 59105-3395

MURPHY
EXPLORATION & PRODUCTION COMPANY

POST OFFICE BOX 547
POPLAR, MONTANA 59255

June 28, 1999

John Carson
United States Environmental Protection Agency
Region 8
999 18th Street – Suite 500
Denver, Co 80202-2466

Dear Mr. Carson

As per our phone conversation you will find copies of the Underground Injection Control Annual Monitoring Reports which we originally submitted sometime in late January of this year. The reports submitted cover the following wells:

EPU No. 5-D	MT2021-00021
EPU No. 80-D	MT2026-00026
EPU No. 1-D	MT2022-00022
EPU No. 8-D	MT2023-00023
Huber No. 5-D	MT2779-04278

No report was submitted on the Mule Creek Allotted No. 1 MT2791-04292 as the application for permit was cancelled in July of 1997.

Sincerely,

Sharon Bravard
Sharon Bravard

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

East Poplar Unit C Battery and Wells EPU Nos. 5 & 18

The East Foplar Unit C Battery and the wells producing into the battery, EPU Nos. 5 and 18, are onshore production facilities located in Roosevelt County, Montana, in the East Poplar Unit Oil Field. The field is about 6 miles Northeast of Poplar, Montana, in Townships 28 and 29 North and Ranges 50 and 51 East.

The operator of the East Poplar Unit C Lease is Murphy Oil Corporation located at P. O. Box 547, Poplar, Montana 59255. The corporate headquarters are at 200 Jefferson Avenue, El Dorado, Arkansas, 71730.

The battery consists of a 6' x 27' vertical separator, a circulating pump with appropriate lines, and two 1,000 barrel galvanized bolted tanks. The tanks are vented to the atmosphere and have unrestricted 4" overflow lines between tanks. An earthen pit of about 5,000 barrels capacity is located at the tank battery into which the separator or tanks may be emptied if needed for fluid storage.

Each of the wells are pumped. The EPU No. 5 has a rod pump and the EPU No. 18 has a Reda pump. There are 4' x 4' x 2' cellars at each wellhead with overflow lines to earthen pits capable of holding a full days fluid production in case of a leak at the well site.

The field flow lines and the well casing of each well are cathodically protected. The equipment is in excellent operating condition and there is no reasonable likelihood of a discharge or spill event.

The facilities are about 1.4 miles from Poplar River. The terrain dips gently West. The soil is sandy and the fields are under cultivation. Because of the distance to the river, the type of soil, and the terrain the 5,000 barrel pit at the tank battery and the well cellars and overflow pits are sufficient secondary containment for these facilities.

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

East Poplar Unit C Battery and Wells EPU Nos. 5 & 18

The East Poplar Unit C Battery and the wells producing into the battery, EPU 5 and 18, are onshore production facilities located in Roosevelt County, Montana, in the East Poplar Unit Oil Field. The field is about 6 miles Northeast of Poplar, Montana, in Townships 28 and 29 North and Ranges 50 and 51 East.

The operator of the East Poplar Unit C Lease is Murphy Oil Corporation located at P. O. Box 547, Poplar, Montana 59255. The corporate headquarters are at 200 Jefferson Avenue, El Dorado, Arkansas 71730.

The battery consists of a 6' x 27' vertical separator, a circulating pump with appropriate lines, and two 1,000 barrel galvanized bolted tanks. ~~The two 1,000 barrel tanks are galvanized and are bolted construction.~~ The tanks are vented to the atmosphere and have unrestricted 4" overflow lines between tanks. An earthen pit of about 5,000 barrels capacity is located at the tank battery into which the separator or tanks may be emptied if needed for fluid storage.

Each of the wells are pumped. The EPU No. 5 has a rod pump and the EPU No. 18 has a Reda pump. There are 4' x 4' x 2' cellars at each wellhead with overflow lines to earthen pits capable of holding a full days fluid production in case of a leak at the well site.

The field flow lines and the well casing of each well are cathodically protected. The equipment is in excellent operating condition and there is no reasonable likelihood of a discharge or spill event.

The facilities are about 1.8 miles from Poplar River. The terrain dips gently West. The soil is sandy and the fields are under cultivation. Because of the distance to the river, the type of soil, and the terrain the 5,000 barrel pit at the tank battery and the well cellars

A.F.E. NO. 53-1

AUTHORITY FOR EXPENDITURE

MURPHY CORPORATION - EAST POPLAR (ZIMMERMAN) NO. 5

CENTER OF SW SW SEC. 2, TWP. 28 N., RANGE 51 E., ROOSEVELT CO., MONTNANA

WELL DRILLING & CONSTRUCTION EXPENSE:	TO CSG. PT.	COMP. & EQUIP.	TOTAL COST
Drilling: Rig up & rig down	$ 9,800	$	$ 9,800
Day Work: 53 days @ $900/day (6000')	41,400	6,300	47,700
Loc. survey, permit & prep.	1,000		1,000
Roads, fences, cattleguards, etc.		400	400
Mud material & chem., including oil & gas	6,000		6,000
Fuel	8,000	700	8,700
Water	540	60	600
Drilling bits, baskets, etc.	3,960	210	4,170
Drill pipe rental	4,000		4,000
Move rig in & out	5,000		5,000
Derrick rent, erect & dismantle	3,400		3,400
Winterize rig	2,000		2,000
Cementing casing	1,050	800	1,850
Coring materials & services	3,450		3,450
Testing services, including swabbing	2,950	610	3,560
Core Analyses	1,500		1,500
Other logs, surveys & analyses	1,010	540	1,550
Hydrafrac, acidize, etc., including oil	—	—	—
Float equip., centralizers, etc.	110	340	450
Perf. & set packer		1,750	1,750
Trucking, welding & other labor	700	1,000	1,700
Supervision & Miscellaneous	4,500	500	5,000
Total estimated well drilling & const. cost	$ 100,370	$ 13,210	$113,580
WELL EQUIPMENT COST:			
Casing: 1010' of 9-5/8" O.D. 40# J-55	$ 3,900	$	$ 3,900
6000' of 5-1/2" O.D. 15.50# J-55		8,000	8,000
Tubing: 6000' of 2-3/8" O.D. 4.70# J-55		3,000	3,000
Packers, etc.		540	540
Casing head & connections	600	250	850
Xmas tree & connections		1,800	1,800
Total estimated well equipment cost	4,500	13,590	18,090
TOTAL ESTIMATED COST OF WELL	$ 104,870	$ 26,800	$131,670

This A.F.E. does not include tanks and lease equipment

APPROVAL OF EXPENDITURE

Production Department:

Requested by H. Paul C McDonald
Date 6-6-52

Approved by R. D. Curtis V.P.
Date 6-6-52

Executive Department:

Approved by C H Murphy Jr Pres.
Date 6-6-52

Approved:

By _____

Date _____

AFE No. 56-4-14
Workover

AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT WELL #5 (Workover) #1
SW SW Section 2-T28N-R51E, Roosevelt County, Montana

Pulling machine and crew	$ 4,800
Cement, diesel oil, and pump service	1,800
Squeeze tools	1,500
Radioactive logs	600
Reacidize	600
TOTAL ESTIMATED COST	$ 9,300

APPORTIONMENT OF TOTAL ESTIMATED COST

	%	
Murphy Corporation - Unit Operator	31.448470	$ 2,925
Munoco Company	2.098565	195
Placid Oil Company	33.545035	3,120
Carter Oil Company	16.335860	1,519
Phillips Petroleum Company	16.335860	1,519
C. F. Lundgren	.238210	22

APPROVAL OF EXPENDITURE

Requested by:

Harold D. McLaren — 8-12-55
Division Production Sup't. — Date

Recommend Approval:

Gordon Kirby — 8-12-55
Division Manager — Date

Recommend Approval:

_____ — _____
General Production Sup't. — Date

Recommend Approval:

_____ — _____
Budget Supervisor — Date

Approved:

_____ — _____
Vice President-Operations — Date

HMteg
8-12-55

A.F.E. No. 56-4-39

AUTHORITY FOR EXPENDITURE
MURPHY CORPORATION - EAST POPLAR UNIT NO. 5
(Installation of Pumping Unit)
SW SW Section 2-T29N-R51E, Roosevelt County, Montana

Pumping unit, complete with engine	$5850
Labor and materials, setting unit	750
Trucking, small fittings, and incidentals	150
Rods, pump, and well head equipment	3000
TOTAL ESTIMATED COST	$9550

APPORTIONMENT OF TOTAL ESTIMATED COST

	%	
Murphy Corporation - Unit Operator	31.448070	$3003
Hunoco Company	2.098565	200
Placid Oil Company	33.598035	3203
The Carter Oil Company	16.833360	1560
Phillips Petroleum Company	16.833360	1560
C. F. Lundgren	.238210	23

APPROVAL OF EXPENDITURE

Requested by:

Division Prod. Supt. FEB 1 1956 Date

Recommend Approval:

Division Manager FEB 1 1956 Date

Approved:

By Date

Recommend Approval:

Staff Production Eng. Date

Recommend Approval:

Budget Supervisor Date

Approved:

Vice President-Operations Date

HM:eg
2-1-56

AFE No. 7-1501

AUTHORITY FOR EXPENDITURE
MURPHY OIL CORPORATION - EAST POPLAR UNIT 5
SW SW Section 2-T29N-R51E, Roosevelt County, Montana

PRESENT STATUS: Pumping from the B-1 & 2 Zones. Well Test 1-3-67 69 BOPD · 87 BWPD.

JUSTIFICATION: There were 3 tubing leaks in 1966. Hydro-tested April and November and Dialog May, 1966 for a cost of approximately $4,650.

Pay out 1 Dia-log and 1 Hydro-test tubing job.

ESTIMATED COST

Pulling Unit, 20 hrs. at $33 per hr.	$ 675.00
5500' of 2-3/8" 4.70# EUE Class No. 2 tuboscoped tubing at $0.54 per ft.	$ 2,975.00
Cost to Tubo-scope Salvage tubing 180 jts. at $2.95 per jt.	$ 525.00
Credit for Estimated 30% Class # 2 1650' at $0.54 ft.	($ 900.00)
Credit for Estimated 30% Class # 3 1650' at $0.36 ft.	($ 600.00)
Credit for Estimated 40% Class # 4 2200' at $0.10 ft.	($ 225.00)
Misc. Trucking and Labor	$ 300.00
Estimated Net Cost	$ 2,750.00

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	$ 865.00
Munoco Company	2.096565%	$ 58.00
Placid Oil Company	33.545035%	$ 922.00
Humble Oil and Refining Company	16.335860%	$ 449. 0
Drilling Specialties	16.335860%	$ 449.00
C. F. Lundgren	.238210%	$ 7.00

APPROVAL OF EXPENDITURE

Requested by:

M. T. James — 1-12-67 Date

L. L. Duncan — 1/16/67 Date

APPROVED:

W. J. Thorton — 1-17-67 Date

MTJ/ab
January 12, 1967

A.F.E. No. 3-1522-10

AUTHORITY FOR EXPENDITURE
MURPHY OIL CORPORATION - EAST POPLAR UNIT NO. 5
SW SW Section 2, T29N, R51E, Roosevelt County, Montana
(Change Rods and Tubing)

Proposal and Justification: It is proposed to change the rods with Condition 2 tuboscoped rods and the tubing with Condition 2 tuboscoped tubing.

There have been 8 rod parts and 4 tubing leaks on this well in the past 1-1/2 years. The tubing was swapped end for end in June of 1971 in an effort to slow the leak frequency. May well test show this well to be pumping at the rate of 134 BFPD 32 BOPD 102 BWPD 76% BS&W.

ESTIMATED COST

Pulling Unit, 20 Hrs. at $40/hr.	$ 800
5550' of Condition 2 Tubing	$ 4,175
2150' of 3/4", Condition 2 Rods	$ 750
3400' of 5/8", Condition 2 Rods	$ 850
Credit for 5550' of Condition 4 Tubing	($ 1,675)
Credit for 5550' of Condition 4 Rods	($ 350)
Misc. Labor, Material and Trucking	$ 400
Total Estimated Cost	$ 4,950

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	$ 1,556
Placid Oil Company	33.545035%	$ 1,660
Exxon Company, U.S.A.	16.335860%	$ 809
Phillips Petroleum Company	16.335860%	$ 809
Munoco Company	2.096565%	$ 104
C. F. Lundgren	.238210%	$ 12

APPROVAL OF EXPENDITURE

Requested by: Approved by:

W. G. Brown — 6-25-73 Date — Date — 6/29/73

Date Job Completed 7/26/73
Approximate Cost $ 3,905
By Gerald Hagadone

This job went as planned with the actual expenses being less due to different figures being used for the price of the tubing and rods. The price of the junk tubing was raised .05¢ per foot and the rods .25¢ per rod since this A.F.E. was initiated. WGB. June 22, 1973

WGB/sb

A.F.E. No. 3-1527-10

AUTHORITY FOR EXPENDITURE
MURPHY OIL CORPORATION - EAST POPLAR UNIT NO. 5
SW SW Section 2, T29N, R51E, Roosevelt County, Montana
(Confirming A.F.E. - Patch Casing Leak)

Proposal and Justification: A casing leak developed at 3187' and was patched.

This well was pumping at the rate of 151 BFPD 36 BOPD 115 BWPD 76% BS&W. In an effort to regain full production this leak had to be repaired.

ESTIMATED COST

Pulling Unit and Drilling Equipment	$ 4,250
Packer, Bridge Plug and Services	$ 1,700
Cement, Pump Trucks and Services	$ 3,975
Pump Repair	$ 375
Misc. Labor, Material and Trucking	$ 350
TOTAL ESTIMATED COST	$10,650

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	$ 3,349
Placid Oil Company	33.545035%	$ 3,573
Exxon Company, U.S.A.	16.335860%	$ 1,740
Phillips Petroleum Company	16.335860%	$ 1,740
Munoco Company	2.096565%	$ 223
C. F. Lundgren	.238210%	$ 25

APPROVAL OF EXPENDITURE

Requested by:

W. G. Brown — Date 8-20-73

Approved by:

A. W. Simpson — Date 8/23/73

This job went better than most casing leaks in that it was done with 1 squeeze job. There has been no indication of it leaking since the job was comp.. Full oil production has not been regained but this may be due in part to the Reda installation on the offset well. WGB

Date Job Completed 8-18-73

Approximate Cost $10,650
by WGB

A.F.E. NO. 3-1538-10

AUTHORITY FOR EXPENDITURE
MURPHY OIL CORPORATION - EAST POPLAR UNIT NO. 5
SW SW Section 2, T29N, R51E, Roosevelt County, Montana.
(Acidize B-1 & 2 Zones)

PROPOSAL AND JUSTIFICATION: It is proposed to acidize the B-1 & 2 perforations with 500 gallons of 15% acid with inhibitor and solvent added.

This well was completed in July, 1952 and DOC squeezed in 1955 and again in 1957. In August of 1973 a casing leak developed at 3187' (Dakota Silt) and was repaired. Prior to the casing leak this well was pumping at the rate of 151 BFPD 36 BOPD 115 BWPD 76% BS&W and latest test indicates 137 BFPD 12 BOPD 125 BWPD 91% BS&W. This well has either been contaminated by the water from the casing leak or has been drawn down by the Reda in East Poplar Unit No. 18, the northeast offset. In an effort to break an emulsion block or water block this well should be treated with acid, inhibitor and solvent. Payout, assuming the production increased to 35 BOPD, would be 20 days.

ESTIMATED COST

Pulling Unit	$ 400
500 Gallons of Acid and Services	850
Pump Repair	350
Misc. Labor, Material and Trucking	250
Total Estimated Cost	$ 1,850

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	$ 582
Placid Oil Company	33.545035%	$ 621
Exxon Company, U.S.A.	16.335860%	$ 302
Phillips Petroleum Company	16.335860%	$ 302
Munoco Company	2.096565%	$ 39
C. F. Lundgren	.238210%	$ 4

APPROVAL OF EXPENDITURE

Requested by:

W. G. Brown — Date

Approved by:

A. W. Simpson — Date 11/26/73

Job Complete 12-26-73
Appr Cost $870.00
By [illegible]

WGB/sb
November 15, 1973

This Job went as planned. The expense was lower than anticipated, because the pump repair Pulling Unit was not needed. The production was increased from 12 BOPD To 41 BOPD. [illegible]

Copy
File

A.F.E. No. 5-1541-10

REC. PROD. NOV 20 1975

AUTHORITY FOR EXPENDITURE 39
MURPHY OIL CORPORATION - EAST POPLAR UNIT NO. 5 28
SW SW Section 2, T28N, R51E, Roosevelt County, Montana 24
(Fish Parted Tubing and Replace Tubing String)

JUSTIFICATION: A pulling unit was moved on this well to repair a tubing leak. The tubing twisted off at 3706' while unseating the anchor. This necessitated a fishing job. It was decided that the tubing in this well should also be changed at this time.

ESTIMATED COST 43

Pulling Unit	$ 3,254
Fishing Tools and Supervision	$ 1,138
Pump Repair	$ 750
Misc. Material, Labor and Supervision	$ 800
179 Jts., 5522', of 2-3/8", Cond. 2 Tubing	$ 4,749
Credit of 90 Jts., 2761' of 2-3/8", Cond. 4 Tubing	($ 1,242)
Credit of 45 Jts., 1030' of 2-3/8", Cond. 2 Tubing	($ 886)
Credit of 45 Jts., 1031' of 2-3/8", Cond. 3 Tubing	($ 670)
TOTAL ESTIMATED COST	$ 7,893

APPORTIONMENT OF TOTAL ESTIMATED COST 32

Murphy Oil Corporation	31.448470%	$ 2,482
Placid Oil Company	33.545035%	$ 2,648
Exxon Company, U.S.A.	16.335860%	$ 1,289
Phillips Petroleum Company	16.335860%	$ 1,289
Munoco Company	2.096565%	$ 166
C. F. Lundgren	.238210%	$ 19

APPROVAL OF EXPENDITURE 39

Requested by:

Billy G. Melear — Date

Approved by:

A. W. Simpson — Date 11/24/75

Job completed 11/4/75 -
Approximate cost 7,900

sb
November 17, 1975

APP.

EXEC. PROD. AUG 1 1983

A.F.E. No. 3-1507-10

MURPHY OIL CORPORATION
AUTHORITY FOR EXPENDITURE- EAST POPLAR UNIT NO. 5
SW SW SECTION 2, T28N, R51E, ROOSEVELT COUNTY, MONTANA

The flowline on the East Poplar Unit No. 5 has had numerous leaks. It is proposed to change out with a 2" A.O. Smith Silver Thread Fiberglass.

ESTIMATED COST

Pipe & Glue	$ 2,300
Roustabout Labor	$ 1,900
Supervision & Misc.	$ 800
TOTAL ESTIMATED COST	$ 5,000

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	$ 1,572
Petro-Lewis Corporation	33.545035%	$ 1,677
Exxon Company, U.S.A.	16.335860%	$ 817
Phillips Petroleum Company	16.335860%	$ 817
Munoco Company	2.096565%	$ 105
C.F. Lundgren	.238210%	$ 12

APPROVAL OF EXPENDITURE

Requested by:

Raymond Reede — Date: 7-28-83

Approved by:

A.W. Simpson — Date: 8/2/83

DATE JOB COMPLETED 8-19-83
APPROX IMPT COST $1094.20
BY RR

FOR YOUR INFORMATION ONLY

RR/bv
July 28, 1983

THIS IS AN ESTIMATE ONLY

(SOC)

CASH EXPENDITURE
QUARTER
FIRST | SECOND | THIRD | FOURTH

A.F.E. No. 2-0413-010

MURPHY OIL USA, INC.
AUTHORITY FOR EXPENDITURE
EAST POPLAR UNIT NO. 5
SW SW SECTION 2, T28N, R51E
ROOSEVELT COUNTY, MONTANA

PROPOSAL & JUSTIFICATION:

This well has a casing leak at 4'. It is proposed to repair the casing leak and put the well back on production.

EASTIMATED COST

Rig	$ 7,000
Cement	3,800
Wire Line Services	1,200
Rental Tools	4,500
Trucking	500
Hydrotest	1,000
Roustabout	1,000
Supervision & Miscellaneous	1,000
TOTAL ESTIMATED COST	$20,000

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil USA, Inc.	60.363718%	$12,073
Doil Oil & Gas	20.965647%	4,193
Exxon Company U.S.A.	16.335860%	3,267
Munoco Company	2.096565%	419
C.F. Lundgren	.238201%	48

APPROVAL OF EXPENDITURE

Requested by:

Raymond Reede 7-14-92
Raymond Reede Date

Approved by:

Sidney Campbell Date

Paul Ramsey Date

RR/jh
July 14, 1992

oct 1979 changed pump
Oct 26-79 Test 34 BO 248 BW
Feb-80 Test 35 BO 170 BW
April-80 Test 33 BO 160 BW

200

Aug 76 changed pump
9-16-76 Test 36 BO 219 Bw 86%
11-3-76 Test 36 BO 277 Bw 87%
12-3-76 Test 39 BO 239 Bw 86%

Jan 26-77 changed pmp
Feb-17-77 test 28 BO 170 Bw
April 1-77 test 31 BO 209 Bw
May 6-77 test 32 BO 196 Bw
July-7-77 test 41 BO 251 Bw
Sept-2-77 test 23 Bc 156 Bw

Sept 10 77 - changed pump
9-22-77 test 47 BO 198 Bw 80%
10-14-77 Test 33 BO 202 Bw 86%
1-27-78 Test 32 BO 170 Bw
4-6-78 test 31 BO 154 Bw

EPUS

Permit App

29 p

CSZ-99

PERMIT APPLICATIONS

298

Form 331b—10M—4-44

BOARD OF RAILROAD COMMISSIONERS OF THE STATE OF MONTANA

OIL AND GAS WELL DIVISION Board of Railroad Commissioners of the State of ~~Wisconsin~~ Zimmerman

SUNDRY NOTICES AND REPORT OF WELLS

(Indicate Nature of Data by Checking)

RECEIVED JUN 10 1952

Notice of intention to drill	X	Subsequent record of shooting	
Notice of intention to change plans		Record of perforating casing	
Notice of date for test of water shut-off		Notice of intention to pull or otherwise alter casing	
Report on result of test of water shut-off		Notice of intention to abandon well	
Notice of intention of redrill or repair well		Subsequent report of abandonment	
Notice of intention to shoot		Supplementary well history	

_____, 19__

Following is a {notice of intention to do work / ~~report of work done~~} on land {~~owned~~ / leased} described as follows:

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 5 2 (m. sec.) 28N (Township) 51E (Range) (Meridian)

The well is located 660 ft. {~~S.~~ / N.} of South line and 660 ft. {~~E.~~ / W.} of East line of Sec. 2

The elevation of the derrick floor above the sea level is ?

DETAILS OF PLAN OF WORK

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work.)

This well to be known as East Poplar Unit (Zimmerman) #5.
Will set approximately 40' of 13 3/8 conductor casing and cement to surface. Then will set approximately 1000' of 9 5/8 surface casing and cement to surface.

Proposed total depth of this well is 5850 so as to test the Charles and the top of the Madison. Adequate blow out preventers will be installed and maintained in good condition.

RECEIVED

JUN 9 1952

OIL CONSERVATION BOARD AND BOARD OF RAILROAD COMMISSIONERS BILLINGS

Approved 6/9/52 (Date) J. E. Platt

Title Supervisor

Oil and Gas Well Division

Company C.H.Murphy, Jr. EtAl

By Harold D Milam

Title District Production Supt.

Address Box 76 Poplar, Montana

NOTE:—Reports on this Form to be submitted to the Superviser for Approval

7 Form 331b—10M—4

Board of Railroad Commissioners, State of Montana
JUL 9 1952
RECEIVED

BOARD OF RAILROAD COMMISSIONERS OF THE STATE OF MONTANA

OIL AND GAS WELL DIVISION

Federal Poplar Unit (Zimmerman)

SUNDRY NOTICES AND REPORT OF WELLS

(Indicate Nature of Data by Checking)

Notice of intention to drill		Subsequent record of shooting	
Notice of intention to change plans		Record of perforating casing	
Notice of date for test of water shut-off		Notice of intention to pull or otherwise alter casing	
Report on result of test of water shut-off		Notice of intention to abandon well	
Notice of intention of redrill or repair well		Subsequent report of abandonment	
Notice of intention to shoot		Supplementary well history	

RECEIVED
JUN 25 1952
OIL CONSERVATION BOARD AND BOARD OF RAILROAD COMMISSIONERS
BILLINGS

June 23, 1952

Following is a {notice of intention to do work / report of work done} on land {owned / leased} described as follows:

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 C SW/4 SW/4 Sec 2 (m. sec.) 28N (Township) 51E (Range) (Meridian)

The well is located 993 660 ft. {S. / N.} of South line and 660 ft. {E. / W.} of WEST line of Sec. 2

The elevation of the derrick floor above the sea level is 2114

DETAILS OF PLAN OF WORK

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work.)

Spudded 6-13-52. Drilled to 82' and set 13 3/8" conductor casing to 78'. Cemented with 60 sax, regular cement, 4% $CaCl_2$. Plugged down 10:25 P.M. 6-14-52

Drilled to 980' and ran 9 5/8" 36# J-55 casing to 967.48'. Cemented with 400 sax, regular cement. 1½% $CaCl_2$. Plugged down 11:55 AM 6-18-52

On 6-19-52 the 9 5/9 was tested to 1000# for 30 min. Pressure held steady through out test.

Approved July 7, 1952 (Date)
J. E. Pluet
Title Chief Oil & Gas Field Supervisor
Oil and Gas Well Division

Company Murphy Corporation
By Harold Nolan
Title District Production Superintendent
Address Box 76, Poplar, Montana

NOTE:—Reports on this Form to be submitted to the Superviser for Approval

7 Form 331b—10M—4-4

Board of Railroad Commissioners
of the State of Montana
JUL 24 1952

BOARD OF RAILROAD COMMISSIONERS OF THE STATE OF MONTANA

OIL AND GAS WELL DIVISION

Lease East Poplar Unit (Zimmerman)

SUNDRY NOTICES AND REPORT OF WELLS

RECEIVED 19—

(Indicate Nature of Data by Checking)

Notice of intention to drill		Subsequent record of shooting	
Notice of intention to change plans		Record of perforating casing	
Notice of date for test of water shut-off		Notice of intention to pull or otherwise alter casing	
Report on result of test of water shut-off		Notice of intention to abandon well	
Notice of intention of redrill or repair well		Subsequent report of abandonment	
Notice of intention to shoot		Supplementary well history	

July 14, 19 52

Following is a {notice of intention to do work / report of work done} on land {owned / leased} described as follows:

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 C SW/4 SW/4 Sec 2 (m. sec.) 28N (Township) 51E (Range) (Meridian)

The well is located 660 ft. {S. / N.} of Scuth line and 660 ft. {E. / W.} of West line of Sec. 2

The elevation of the derrick floor above the sea level is 2114

DETAILS OF PLAN OF WORK

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work.)

D.S.T.#3, 5649-5659, Johnson Tool, straddle packers, ½" bot. chk., no W.C. Tool open 7:59 AM for 4 hours, string blow first hour (2# TFP). Fair blow for remainder of test. Shut in 20 min. Rec. 5071' clean oil, 93' mud cut with oil and gas, 186' black salt wtr., 186 clear s.w. Chlorides 110,000 PPM.
IBHFP-0, FBHFP-2000, BHSIP-2950, Hydro-3350.

D.S.T.#4, 5667-5686, Johnson Tool, straddle packers, ½" bot. chk., no W.C. Tool open @ 3:44 AM for 144 min. Strong blow. Gas to surface in 68 min., oil to surface in 93 min. Shut in 15 min. Top shut in pressure-910#, top flowing pressure on ¼" chk.-210#. Rec. 5265' of clean oil, 31' mud cut w/ oil & gas and 372' salt wtr. Chlorides-75,000 PPM.
IBHFP-350#, maximum BHFP with no choke-2200#, MBHFP on ¼" chk.-2325, BHSIP-2950, Hydro-3325.

Approved July 22, 1952
Harold Milam
(DLV) Platt
Title Chief Oil & Gas Field Supervisor
Oil and Gas Well Division

Company C. H. Murphy, Jr. Et Al
By Harold Milam
Title District Production Supt.
Address Box 76, Poplar, Montana

NOTE:—Reports on this Form to be submitted to the Superviser for Approval.

Form 33 1b—1M—4-52 Byerly Pub. Co., Lewistown

BEST COPY AVAILABLE

BOARD OF RAILROAD COMMISSIONERS OF THE STATE OF MONTANA

OIL AND GAS WELL DIVISION

Board of Railroad Commissioners of the State of Montana

SUNDRY NOTICES AND REPORT OF WELLS

Lease East Poplar Unit (Zimmerman)

JUL 24 1952

(Indicate Nature of Data by Checking)

Notice of intention to drill		Subsequent record of shooting	
Notice of intention to change plans		Record of perforating casing	
Notice of date for test of water shut-off		Notice of intention to pull or otherwise alter casing	
Report on result of test of water shut-off		Notice of intention to abandon well	
Notice of intention to redrill or repair well		Subsequent report of abandonment	
Notice of intention to shoot		Supplementary well history	

RECEIVED

JUL 21 1952

OIL CONSERVATION BOARD AND BOARD OF RAILROAD COMMISSIONERS BILLINGS

July 17 1952

Following is a {notice of intention to do work / report of work done} on land {owned / leased} described as follows:

MONTANA (State) Roosevelt (County) East Poplar Montana (Field)

Well No. 5 C SW/4 SW/4 Sec. 2 (m.sec.) 28N (Township) 51E (Range) Meridian)

The well is located 660 ft. {S. / N.} of South line and 660 ft. {E. / W.} of West line of Sec. 2

The elevation of the derrick floor above the sea level is 2114

DETAILS OF PLAN OF WORK

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work.)

D.S.T.#5, 5754-5792, Straddle Packers, ½" bot. chk., no W.C. Tool open @ 3:22 A.M. for 4 hours. Strong blow @ first to weak blow at end of test. Closed @ 7:22 A.M. Rec. 2670' clean oil and 120' mud cut oil and gassy water and gassy mud. Was unable to squeeze any filtrate from the mud to run a Chloride test.

IEHFP-2670, FEHFP-1200, ISIP-3100, FSIP-3100, Hydro-3400

Approved July 22, 1952

J. E. Patt

Chief Oil & Gas Field Supervisor

Oil and Gas Well Division

Company C. H. Murphy, Jr. Et Al

By Harold Murphy

District Production Supt.

Address Box 70, Poplar, Montana

NOTE:—Reports on this Form to be submitted to the Supervisor for Approval and must be filed in duplicate.

Form 33 1b—1M—4-52 Byerly Pub. Co., Lewistown.

BEST COPY AVAILABLE

BOARD OF RAILROAD COMMISSIONERS OF THE STATE OF MONTANA

OIL AND GAS WELL DIVISION

Board of Railroad Commissioners Unit
Lease East Poplar (Zimmerman)
of the State of Montana

SUNDRY NOTICES AND REPORT OF WELLS

(Indicate Nature of Data by Checking)

July 30 1952

Notice of intention to drill		Subsequent record of shooting	
Notice of intention to change plans		Record of perforating casing	
Notice of date for test of water shut-off		Notice of intention to pull or otherwise alter casing	
Report on result of test of water shut-off		Notice of intention to abandon well	
Notice of intention to redrill or repair well		Subsequent report of abandonment	
Notice of intention to shoot		Supplementary well history	

RECEIVED JUL 24 1952

RECEIVED 19

OIL CONSERVATION BOARD AND BOARD OF RAILROAD COMMISSIONERS
BILLINGS

July 21, 19 52

Following is a {notice of intention to do work / report of work done} on land {owned / leased} described as follows:

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 C SW/4 SW/4 Sec. 2 (m.sec.) 28N (Township) 51E (Range) (Meridian)

The well is located 660 ft. {XXX N.} of South line and 660 ft. {E. W.} of West line of Sec. 2 22

The elevation of the derrick floor above the sea level is 2114

DETAILS OF PLAN OF WORK

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work.)

D.S.T.#6, 5806-5815, ½" bot. chk., no W.C. Tool open @ 11: AM for 4 hours. Strong blow @ first to weak blow @ end of test. Closed in 15 min. Rec. 3109' oil and 126' mud cut w/ oil & gas. IEHFP-100#, FBHFP-1500#, EHSIP-3150#, Hydro-3400#.

5815, corrected to 5824,. Ran Schlumberger and Microlog. SCH T.D. 5824'. Laid down drill pipe and ran 177 Jts. of 5½ 15.50# J-55 totaling 5805.65. Landed 12.30' below K.K.B. with shoe 6' from bottom @ 5818. Pipe checked bottom @ 5824. Float collar @ 5732 & centralizers @ 5512, 5650, 5607, 5784, 5808 & Scratchers 5507-10, 5552-20, 5642-48, 5661-67, 5684-90, 5786-92, 5802-05 and 5810-13. Cemented w/ 250 sax reg. & 5 sax gel. Plug down @ 5:45. Pipe rotated freely thruout cementing operation.

Temperature survey indicated top of cement @ 4100'

Approved July 28, 1952

Company C. H. Murphy, Jr. Et Al

By Harold D. Milam

Title Chief Oil & Gas Field Supervisor

Title District Production Superintendent

Oil and Gas Well Division

Address Box 76, Poplar, Montana

NOTE:—Reports on this Form to be submitted to the Supervisor for Approval

Form 33 1b—1M—4-52 Everly Pub. Co., Lewistown

BEST COPY AVAILABLE

RECEIVED
AUG 15 1952
OIL CONSERVATION BOARD OF THE STATE OF MONTANA

BOARD OF RAILROAD COMMISSIONERS OF THE STATE OF MONTANA

OIL AND GAS WELL DIVISION

Lease East Poplar Unit (Zimmerman)

SUNDRY NOTICES AND REPORT OF WELLS

(Indicate Nature of Data by Checking)

Notice of intention to drill		Subsequent record of shooting	
Notice of intention to change plans		Record of perforating casing	
Notice of date for test of water shut-off		Notice of intention to pull or otherwise alter casing	
Report on result of test of water shut-off		Notice of intention to abandon well	
Notice of intention to redrill or repair well		Subsequent report of abandonment	
Notice of intention to shoot		Supplementary well history	

784

RECEIVED
AUG 1 - 1952
OIL CONSERVATION BOARD AND BOARD OF RAILROAD COMMISSIONERS
BILLINGS

July 29, 19 52

Following is a { notice of intention to do work / report of work done } on the { owned / leased } described as follows:

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 C SW/4 SW/4 Sec. 2 (m.sec.) 28N (Township) 51E (Range) (Meridian)

The well is located 660 ft. { S. / N. } of South line and 660 ft. { E. / W. } of West line of Sec. 2

The elevation of the derrick floor above the sea level is 2114

DETAILS OF PLAN OF WORK

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work.)

5824, Perforated with 4 jet shots per foot 5656-5664, 5674-5681 and 5796-5802. Open hole from 5818 to 5824. Ran wire line junk basket and casing gauge. Set Baker Model "D" Packer by wire line method @ 5775. Ran 2 3/8" O.D. JJJ Tubing to 5775 and seated tubing in packer.

Installed Xmas Tree and lifted tubing clear of Packer and displaced mud with water. Well began flowing immediately @ 11:15 PM. and cleaned itself of water into burning pit until 5:00 AM. Tubing was lowered into packer and Xmas Tree connected up. S.I.P. is 650# and T.S.I.P. is 800#. Pulled tubing pressure down to 300# and C.P. held steady. Turned into heater treater and tanks @ 7:00 AM 7-23-52. Produced 363 BBLS oil in 24 hours

Approved August 14, 1952

Company C. H. Murphy, Jr. Et Al

By Howard R. Crane

Title Chief Oil & Gas Field Supervisor

District Production Superintendent

Oil and Gas Well Division

Address Box 76, Poplar, Montana

SS

Ref. 46

Form No. 2

(SUBMIT IN QUADRUPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE
THIS FORM IS NOT ACCEPTABLE UNLESS A COPY BEARING ORIGINAL SIGNATURE AND APPROVAL BY AN AGENT OF THE COMMISSION.

RECEIVED
OIL & GAS CONS. COMM.
STATE OF MONT.
BILLINGS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
" " " " Perf. Addn'l. Zone	X		

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 17, 1971

Following is a {notice of intention to do work / ~~report of work done~~} on land {~~owned~~ / leased} described as follows:

LEASE Huber

MONTANA (State) Roosevelt (County) East Poplar - Non Unit (Field)

Well No. 5 E½ SWNE/4 (m. sec.) Section 10 (Township) 28N (Range) 51E (Meridian) M. P. M.

The well is located 1980 ft. from {N / S} line and 1420 ft. from {E / W} line of Sec. 10

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2092 KB

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

The above well was completed in the 2nd porosity zone of the Nisku in January, 1969. At this time the well is flowing approximately 80 BOPD and 1500 BWPD from perforations at 7262-64. It is proposed to perforate the 1st Nisku porosity zone from 7242-44 and produce from both 1st and 2nd porosity zones.

Approved subject to conditions on reverse of form

Date

By
District Office Agent Title

Company THE COLUMBUS CORPORATION

By D. J. Law

Title Vice-President

Address 1000 Capitol Life Building
Denver, Colorado 80203

COMMISSION USE ONLY
API WELL NUMBER
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

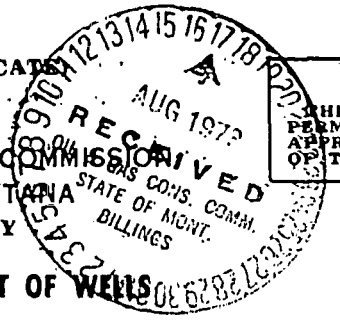
Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY



NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well	X	Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

August 15, 19 73

Following is a {notice of intention to do work} on land {leased} described as follows:

LEASE East Poplar Unit No. 5

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 5 C SW SW (m. sec.) Section 2, T28N (Township) R51E (Range) MPM (Meridian)

The well is located 660 ft. from {S} line and 660 ft. from {W} line of Sec. 2

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2102' G.L.

READ CAREFULLY — **DETAILS OF PLAN OF WORK** — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

A casing leak developed at 3187' (Dakota Formation)
Will squeeze with 25 sacks neat cement and 75 sacks of retarded cement.

Approved subject to conditions on reverse of form

Date AUG 20 1973

ORIGINAL SIGNED BY
By J. R. Hug, Supervisor
District Office Agent

Company MURPHY OIL CORPORATION

By ORIGINAL SIGNED BY W. G. BROWN

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

COMMISSION USE ONLY
API WELL NUMBER
25
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

2

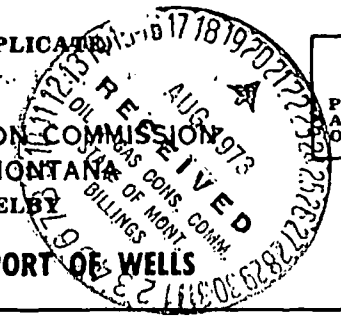
Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY



NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
		Repaired Casing Leak	XX

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

August 20, 19 73

Following is a {report of work done} on land {leased} described as follows:

LEASE East Poplar Unit No. 5

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 5 C SW SW Section 2 (m. sec.) T28N (Township) R51E (Range) MPM (Meridian)

The well is located 660 ft. from {S} line and 660 ft. from {W} line of Sec. 2

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2102' G.L.

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Set Baker retrievable bridge plug at 3250' with 2 sacks of sand on top. Squeezed casing leak at 3187' with 25 sacks of neat cement and 75 sacks of neat cement plus 0.1% of retarder added. Maximum pressure while squeezing was 3900 PSI. Drilled hard cement from 3090' to 3187' and circ. hole to top of sand over bridge plug. Pressure tested leak to 1000 PSI, held OK. Circ. sand out to top of bridge plug. Pulled bridge plug, ran tubing and rods and put well to pumping.

Approved subject to conditions on reverse of form

Date AUG 21 1973

ORIGINAL SIGNED BY

By Judson D. Sweet, Petroleum Engineer
District Office Agent — Title

Company MURPHY OIL CORPORATION

ORIGINAL SIGNED BY W. G. BROWN

By

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

COMMISSION USE ONLY
API WELL NUMBER
25
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

Form 9-331
(May 1963)

L TED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TR. CATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals.)

U. S. REC AUG Billings

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Murphy Oil Corporation

3. ADDRESS OF OPERATOR
P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
660' from the South line and 660' from the West line

5. LEASE DESIGNATION AND SERIAL NO.
Zimmerman

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
East Poplar Unit

8. FARM OR LEASE NAME
East Poplar Unit

9. WELL NO.
No. 5

10. FIELD AND POOL, OR WILDCAT
East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
C SW SW Section 2, T28N, R51E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
2102' G.L.

12. COUNTY OR PARISH
Roosevelt

13. STATE
Montana

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			
(Other) Repair Casing Leak				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

A casing leak developed at 3187' (Dakota Formation)
Will squeeze with 25 sacks neat cement and 75 sacks of retarded cement.

18. I hereby certify that the foregoing is true and correct

SIGNED ORIGINAL SIGNED BY W. G. BROWN TITLE District Superintendent DATE Aug. 15, 1973

(This space for Federal or State office use)

APPROVED BY Virgil L. Pauli TITLE DISTRICT DATE 8-20-73
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
(May 1963)

'NITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN 'PLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

U.S. Geological Survey
RECEIVED
AUG 22 1973
Billings, Montana

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Murphy Oil Corporation

3. ADDRESS OF OPERATOR
P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
660' from the South line and 660' from the West line

5. LEASE DESIGNATION AND SERIAL NO.
Zimmerman Pat

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
East Poplar Unit

8. FARM OR LEASE NAME
East Poplar Unit

9. WELL NO.
No. 5

10. FIELD AND POOL, OR WILDCAT
East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
C SW SW Section 2, T28N, R51E

12. COUNTY OR PARISH
Roosevelt

13. STATE
Montana

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
2102' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) **Repaired Casing Leak**			[X]
(Other)			[ ]	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

Set Baker retrievable bridge plug at 3250' with 2 sacks of sand on top. Squeezed casing leak at 3187' with 25 sacks of neat cement and 75 sacks of neat cement plus 0.1% of retarder added. Maximum pressure while squeezing was 3900 PSI. Drilled hard cement from 3090' to 3187' and circ. hole to top of sand over bridge plug. Pressure tested leak to 1000 PSI, held OK. Circ. sand out to top of bridge plug. Pulled bridge plug, ran tubing and rods and put well to pumping.

18. I hereby certify that the foregoing is true and correct

SIGNED _____ TITLE **District Superintendent** DATE **August 20, 1973**

(This space for Federal or State office use)

APPROVED BY _____ TITLE DISTRICT ENGINEER DATE 8-22-73
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

RECEIVED
DEC 1973
OIL & GAS CONS. COMM.
STATE OF MONT.
BILLINGS

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement	X	Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

December 3, 19 73

Following is a {notice of intention to do work} on land {~~owned~~ leased} described as follows:

LEASE East Poplar Unit No. 5

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 5 C SW SW (m. sec.) Section 2 (Township) T28N (Range) R51E (Meridian) MPM

The well is located 660 ft. from {~~N~~ S} line and 660 ft. from {~~E~~ W} line of Sec. 2

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2102' G.L.

READ CAREFULLY — **DETAILS OF PLAN OF WORK** — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

A casing leak developed in this well in August of 1973. The casing leak at 3187' was repaired. Prior to the casing leak the well was producing at the rate of 151 BFPD 36 BOPD 115 BWPD 76% BS&W. The latest test shows the well producing at the rate of 137 BFPD 12 BOPD 125 BWPD 91% BS&W. A emulsion block or water block has probably developed due to being contaminated by the water from the casing leak. In an effort to break this block the B-1 & 2 perforations should be acidized with 500 gallons of 15% acid with inhibitor and solvent added.

Approved subject to conditions on reverse of form

Date DEC 5 - 1973

By ORIGINAL SIGNED BY:
R. Hyde, Supervisor
District Office Agent — Title

Company MURPHY OIL CORPORATION

By ORIGINAL SIGNED BY W. G. BROWN

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

COMMISSION USE ONLY
API WELL NUMBER
25
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Murphy Oil Corporation

3. ADDRESS OF OPERATOR
P.O. Box 547, Poplar, Montana 59255

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
660' from the South line and 660' from the West line

U. S. GEOL. SURVEY
BILLINGS, MONT.

5. LEASE DESIGNATION AND SERIAL NO.
Pat.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
East Poplar Unit

8. FARM OR LEASE NAME
East Poplar Unit

9. WELL NO.
No. 5

10. FIELD AND POOL, OR WILDCAT
East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
C SW SW Section 2, T28N, R51E

12. COUNTY OR PARISH
Roosevelt

13. STATE
Montana

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
2102' G.L.

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[X]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			
(Other)	[ ]			(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

A casing leak developed in this well in August of 1973. The casing leak at 3187' was repaired. Prior to the casing leak the well was producing at the rate of 151 BFPD 36 BOPD 115 BWPD 76% BS&W. The latest test shows the well producing at the rate of 137 BFPD 12 BOPD 125 BWPD 91% BS&W. A emulsion block or water block has probably developed due to being contaminated by the water from the casing leak. In an effort to break this block the B-1 & 2 perforations should be acidized with 500 gallons of 15% acid with inhibitor and solvent added.

18. I hereby certify that the foregoing is true and correct

SIGNED ORIGIN... C. BROWN TITLE ~~District Superintendent~~ DATE ~~December 3, 1973~~

(This space for Federal or State office use)

APPROVED BY Virgil L. Faul TITLE DISTRICT ENGINEER DATE 12-7-73

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form No. 2

GENERAL RULES
201, 202, 213,
216, 219, 233.1

(SUBMIT IN QUADRUPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	X
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

January 18, 19 74

Following is a {report of work done} on land {leased} described as follows:

LEASE East Poplar Unit No. 5

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 5 C SW SW (m. sec.) Section 2 T28N (Township) R51E (Range) MPM (Meridian)

The well is located 660 ft. from {S} line and 660 ft. from {W} line of Sec. 2

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2102' G.L.

READ CAREFULLY — DETAILS OF PLAN OF WORK — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Acidized the B-1 & B-2 perforations as follows: Pressured the tubing to 650 PSI with the down hole pump. Pumped 500 gallons of 15% HCL, with 10% U-66 solvent added, down the annulus. Caught pressure with 69 bbls. pumped. The pressure increased from 0 to 1200 PSI and remained the same throughout the job. Overflushed acid with 35 bbls. of lease crude.

Maximum Injection Rate	1/2 BPM	Maximum PSI	1200#
Minimum Injection Rate	1/8 BPM	Minimum PSI	1000#
ISIP 1000#	15 Min. SIP	900#	

Workover Potential: 24 Hr. Test Pumped 225 BFPD 40 BOPD 185 BWPD 82% W.C.

Approved subject to conditions on reverse of form

Date JAN 22 1974

By ORIGINAL SIGNED BY Judson O. Sweet, Petroleum Engineer
District Office Agent Title

Company MURPHY OIL CORPORATION

By ORIGINAL SIGNED BY W. C. BROWN

Title District Superintendent

Address P.O. Box 547, Poplar, Montana 59255

COMMISSION USE ONLY
API WELL NUMBER
25
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the District Agent for Approval in Quadruplicate

WHEN USED AS PERMIT TO DRILL, THIS EXPIRES 90 DAYS FROM DATE OF APPROVAL.

OVER

2

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: Pat.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1. OIL WELL [X] GAS WELL [ ] OTHER

7. UNIT AGREEMENT NAME: East Poplar Unit

2. NAME OF OPERATOR: Murphy Oil Corporation

8. FARM OR LEASE NAME: East Poplar Unit

3. ADDRESS OF OPERATOR: P.O. Box 547, Poplar, Montana 59255

9. WELL NO.: No. 5

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 660' from the South line and 660' from the West line

10. FIELD AND POOL, OR WILDCAT: East Poplar Unit

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: C SW SW Section 2, T28N, R51E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 2102' G.L.

12. COUNTY OR PARISH: Roosevelt

13. STATE: Montana

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[X]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Acidized the B-1 & B-2 perforations as follows: Pressured the tubing to 650 PSI with the down hole pump. Pumped 500 gallons of 15% HCL, with 10% U-66 solvent added, down the annulus. Caught pressure with 69 bbls. pumped. The pressure increased from 0 to 1200 PSI and remained the same throughout the job. Overflushed acid with 35 bbls. of lease crude.

Maximum Injection Rate	1/2 BPM
Minimum Injection Rate	1/8 BPM
Maximum PSI	1200#
Minimum PSI	1000#
ISIP	1000#
15 Min. SIP	900#

Workover Potential: 24 Hr. test Pumped 225 BFPD 40 BOPD 185 BWPD 82% W.C.

18. I hereby certify that the foregoing is true and correct

SIGNED ORIGINAL SIGNED BY W. G. BROWN TITLE District Superintendent DATE January 18, 1974

(This space for Federal or State office use)

APPROVED BY Wright L. Pauls TITLE DISTRICT ENGINEER DATE 1-21-74

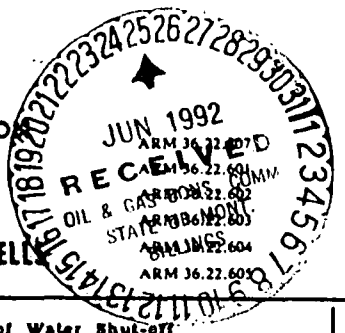
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form No. 2 R 4-85

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE BOARD.

(SUBMIT IN QUADRUPLICATE)
TO
BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY



ARM 36.22.1003
ARM 36.22.1004
ARM 36.22.1013
ARM 36.22.1301
ARM 36.22.1306
ARM 36.22.1309

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill *		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing	X	Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data).

June 23, 19 92

Following is a {notice of intention to do work / ~~report of work done~~} on land {~~owned~~ / leased} described as follows:

LEASE TYPE Private (Private, State, Federal, Indian) LEASE East Poplar Unit No. 5

MONTANA (State) Roosevelt (County) East Poplar Unit (Field)

Well No. 5 C SW SW (m. sec.) Section 2 28N (Township) 51E (Range) MPM (Meridian)

The well is located 660 ft. from {~~N~~ / S} line and 660' ft. from {~~E~~ / W} line of Sec. 2

* For notice of intention to drill, write the API# or the well name of another well on this lease if one exists

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is 2102' G.L.

READ CAREFULLY — **DETAILS OF PLAN OF WORK** — READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

East Poplar Unit No. 5 has developed a leak in the 5½" casing at 4'. It is proposed to change out the top joint of casing and cement the 5½" casing annulus with 175 sacks Class "G" regular cement and 100 sacks Class "G" with .2% calcium chloride.

Approved subject to conditions on reverse of form

Date JUN 26 1992

By Original Signed By James W Halvorson, Petroleum Geologist
District Office Agent Title

Company Murphy Oil USA, Inc.

By Raymond Reede

Title District Manager

Address Box 547, Poplar, MT 59255

BOARD USE ONLY
API WELL NUMBER
25 [redacted] 01815 [redacted] 015051
STATE COUNTY WELL

NOTE:—Reports on this form to be submitted to the appropriate District for approval.
DRILLING PERMIT EXPIRES SIX MONTHS FROM DATE OF APPROVAL.

(SUBMIT IN QUADRUPLICATE)

TO

BOARD OF OIL AND GAS CONSERVATION
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

NOTICE
THIS FORM BECOMES A PERMIT WHEN STAMPED APPROVED BY AN AGENT OF THE BOARD.

1992 SEP 21 AM 9:00

RECEIVED
MONTANA STATE OFFICE
BILLINGS, MONTANA

ARM 36.22.303 ARM 36.22.1003
ARM 36.22.601 ARM 36.22.1004
ARM 36.22.602 ARM 36.22.1013
ARM 36.22.603 ARM 36.22.1301
ARM 36.22.604 ARM 36.22.1306
ARM 36.22.605 ARM 36.22.1309

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill *		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	X
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 14, 1992

Following is a {notice of intention to do work / report of work done} on land {~~xxxx~~ / leased} {described as follows:

LEASE TYPE Private (Private, State, Federal, Indian) LEASE Huber 5

MONTANA (State) Roosevelt (County) East Poplar (Field)

Well No. 5 SW NE 10 (m. sec.) T28N (Township) 51E (Range) Principal (Meridian)

The well is located 1980 ft. from {N / ~~S~~} line and 1420 ft. from {E / ~~W~~} line of Sec. 10

* For notice of intention to drill, write the API# or the well name of another well on this lease if one exists _____

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is

READ CAREFULLY **DETAILS OF PLAN OF WORK** READ CAREFULLY

(State names of and expected depths to objective sands, show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK
RESULT

Perforated 6421'-23', swabbed 9 bbls per hour 100% water. Set CIBP at 6400'.
Perforate 5185'-87'. This was a mistake and was shot 1000' to high. Swabbed 1 BPH 100% water.
Perforate 6185'-87' and acidized with 250 gallons 15% acid. Swabbed 20 bbls per hour 100% water.

This well is currently temporarily abandoned with plans to convert it to a salt water disposal well.

Approved subject to conditions on reverse of form

Date SEP 1 1 1992

By _____ Geologist
District Office Agent Title

Company Murphy Oil USA, Inc.

By Raymond Recall

Title District Manager

Address Box 547, Poplar, MT 59255

BOARD USE ONLY
API WELL NUMBER
25 0185 21102 14
STATE COUNTY WELL

NOTE —Reports on this form to be submitted to the appropriate District for approval
DRILLING PERMIT EXPIRES SIX MONTHS FROM DATE OF APPROVAL.

EPU #5

Form 2
Rev. 8-92

Submit In Quadruplicate To:

Montana Board of Oil and Gas Conservation

Billings or Shelby Office

ARM 36.22.307, 1003, 1004, 1011, 1013, 1103, 1222, 1301, 1306, and 1309

Sundry Notices and Report of Wells

Operator
Murphy Exploration and Production Company

Address
P.O.Box 547

City: Poplar | State: Montana | Zip Code: 59255

Telephone Number ( ) | Telefax Number ( )

Lease Name:
East Poplar Unit

Lease Type (Private/State/Federal):
Private

Well Number:
No. 5

Unit Agreement Name:
East Poplar Unit

Field Name or Wildcat:
East Poplar Unit

Location of well (1/4-1/4 section and footage measurements): SWSW
660' from S Line and 660' from W Line

If directionally or horizontally drilled, show both surface and bottom hole locations)

Section, Township, and Range:
Section 2, T28N, R51E

API Number:
25 [redacted] 01 85 [redacted] 01 51 01 51 1[redacted]
State County Well

Well Type (oil, gas, injection, other):
Oil

County:
Roosevelt

Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change Plans	☐	Subsequent Report of Mechanical Integrity Test	☐
Notice of Intention to Run Mechanical Integrity Test	☐	Subsequent Report of Stimulation or Chemical Treatment	☐
Notice of Intention to Stimulate or to Chemically Treat	☐	Subsequent Report of Perforation of Cementing	☐
Notice of Intention to Perforate or to Cement	☐	Subsequent Report of Well Abandonment	☐
Notice of Intention to Abandon Well	☐	Subsequent Report of Pulled or Altered Casing Repaired	☒
Notice of Intention to Pull or Alter Casing	☐	Subsequent Report of Drilling Waste Disposal	☐
Notice of Intention to Change Well Status	☐	Subsequent Report of Production Waste Disposal	☐
Supplemental Well History	☐	Subsequent Report of Change in Well Status	☐
Other (specify) _____	☐	Subsequent Report of Gas Analysis (ARM 36.22.1222)	☐
_____	☐	_____	☐

Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

A casing leak had developed in the 5-1/2" casing at 4'. Backed 5-1/2" casing off at 38'. Picked up joint of 5-1/2" casing and screwed into stub. Landed and cut off. Pumped 175 sacks neat cement and 100 sacks cement with 2% calcuim chloride added.

BOARD USE ONLY

Approved MAR 6 1996
Date

Original signed by Jon Hjartarson, Chief Field Inspector

Name Title

The undersigned hereby certifies that the information contained on this application is true and correct:

February 20, 1996 Raymond Reede
Date Signed (Agent)

Raymond Reede District Manager
Print Name & Title

Form 3160-5
(November 1994)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires July 31, 1996

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.: Private
6. If Indian, Allottee or Tribe Name: Private
7. If Unit or CA/Agreement, Name and/or No.: East Poplar Unit
8. Well Name and No.: Huber No. 5
9. API Well No.: 25-085-21024
10. Field and Pool, or Exploratory Area: East Poplar Unit
11. County or Parish, State: Roosevelt

1. Type of Well: ☐ Oil Well ☐ Gas Well ☒ Other
2. Name of Operator: Murphy Exploration and Production Company
3a. Address: P.O. Box 547, Poplar, Mt.
3b. Phone No. *(include area code)*: 406-768-3612
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*: SW NE Section 10, T28N, R51E 1980' from the North line and 1420' from the East line

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☒ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

INFORMATION PURPOSE ONLY
It is proposed to convert the Huber No. 5 well into a disposal well. The injection intervals are Mission Canyon perforations at 6185-6187', 6421-6423' and Nisku perforation at 7242-7264'. 2-7/8" tubing will be run with injectin packer set at a depth no higher than 100' above the top of the Mission Canyon perforations. EPA permit has bee applied for and approved EPA Permit No. MT2779-04278

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*: Raymond Reede
Title: District Manager
Signature: Raymond Reede
Date: August 19, 1997

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by: ACCEPTED Kevin Bousee
Title: TEAM LEADER
Date: AUG 21 1997
Office: BK 8-20-97

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

30

Form 3160-5
(November 1994)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0135
Expires July 31, 1996

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.
Private

6. If Indian, Allottee or Tribe Name
Private

7. If Unit or CA/Agreement, Name and/or No.
East Poplar Unit

1. Type of Well
☐ Oil Well ☐ Gas Well ☒ Other

8. Well Name and No.
Huber No. 5-D

2. Name of Operator
Murphy Exploration and Production Company

9. API Well No.
25-085-21024

3a. Address
P.O. Box 547, Poplar, Mt.

3b. Phone No. *(include area code)*
406-768-3612

10. Field and Pool, or Exploratory Area
East Poplar Unit

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
SW NE Section 10, T28N, R51E
1980' from the North line and 1420' from the East line

11. County or Parish, State
Roosevelt

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☒ Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

INFORMATION PURPOSE ONLY

Perforated from 6185-6187, 6421-6423, 7240-7250, 7260-7268 and 7272-7276. Ran 6140' of ~~2~~ 7/8" tubing. Set packer at 6140'. Acidized Nisku formation with 5000 gallons 15% hydrochloric acid, 75 gallons HAI-85M, 50# Ferchek A and 50 gallons Sperse All M

Ran MIT on 11-17-97 - passed.

14. I hereby certify that the foregoing is true and correct

Name *(Printed/Typed)*	Title
Raymond Reede	District Manager
Signature: Raymond Reede	Date: December 9, 1997

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
ACCEPTED Mark Bruendel	ADM - Minerals	DEC 19 1997
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

FL 12/18/97

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

DEC 0 4 1997

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN REQUESTED

Mr. Bruce D. MacArthur
Sr. Operations Coordinator
Murphy Exploration & Production Co.
131 South Robertson Street
New Orleans, LA 70112

RE: UNDERGROUND INJECTION CONTROL (UIC)
AUTHORIZATION TO COMMENCE INJECTION
EPA Permit No. MT2779-04278
Huber No. 5 SWD
East Poplar Field
Roosevelt County, Montana

Dear Mr. MacArthur:

The Environmental Protection Agency (EPA) has received all pre-authorization to inject requirements for the Huber No. 5 SWD. The mechanical integrity test (MIT), the Radioactive Tracer Survey, and the EPA Form No. 7520-12 (Well Rework Record) have been reviewed and approved by the EPA. As of the date of this letter, Murphy Exploration & Production Company (Murphy) is authorized to commence injection into the Huber No. 5 SWD.

The EPA cover letter to the Final Permit, of August 5, 1997, states that within sixty (60) days following the authorization to commence injection Murphy will conduct a step-rate test (SRT) to establish an accurate formation-face fracture gradient of the injection interval. In consideration that injection may not stabilize in a sixty (60) day period, the EPA is extending the time requirement for the SRT to six (6) months following authority to commence injection.

Underground Sources of Drinking Water (USDWs) are defined by the UIC Regulations as aquifers, or portions thereof, which contain less than 10,000 mg/l total dissolved solids (TDS) and which are being, or could be, used as a source of drinking water. The only USDW in Sections 3, 4, and 10 - T28N - R51E [East Poplar Unit (EPU)] has been identified by Murphy, and Dr. Bergantino of the State of Montana, as a shallow Tertiary sand, approximately 150 feet from the surface. Statements of Basis for Final Permit MT2023-00023 (EPU No. 8-D SWD: NW SE Sec. 10 - T28N - R51E), Final Permit MT2026-00026 (EPU 80-D SWD: SW NW Sec. 3 - T28N - R51E), and Final Permit MT2025-00025 (EPU 59-D [P&A]: NE SW NW Sec. 4 - T28N - R51E), and construction details for the subject application, note that this Tertiary sand is behind surface casing that has been cemented to the surface.

FORMATION TOPS AND THICKNESS: LOGS

Huber No 5 SWDW (SW NE Section 10 - T28N - R51E)

Bearpaw Shale	Surface
Judith River (sand)	Behind surface pipe
Heath	4872 - 4973 feet (Oil)
Madison (Charles)	5372 - 5792 feet (Oil)
Mission Canyon	5792 - 6495 feet (Injection)
Lodgepole	6495 - 7104 feet
3-Forks Dol'c Sh	7134 - 7217 feet
Nisku Carbonate	7217 - 7302 feet (Injection)
(Nisku porosity)	7242 - 7267 feet
Duperow	7302 feet
Total Depth (TD)	7307 feet in Duperow

TOTAL DISSOLVED CONTENT (TDS) OF CRITICAL FORMATIONS

*	Judith River	Greater than 10,000 mg/l
**	Heath	Greater than 10,000 mg/l
**	Charles	Greater than 10,000 mg/l
**	Mission Canyon	Greater than 100,000 mg/l
**	Nisku	Greater than 100,000 mg/l

* Judith River sand(s) delineated as non-USDW by the EPA (UNDERGROUND INJECTION ACTIVITIES INTO THE JUDITH RIVER FORMATION ON THE FORT PECK INDIAN RESERVATION: December 1, 1985), the Fort Peck Indian Reservation, and Robert Bergantino, State of Montana.

** TDS values confirmed by water analysis, and/or Robert Bergantino, State of Montana.

Robert Bergantino, State of Montana, advised the Permit writer that there are no USDWs in T28N - R51E, and especially in Section 10 of that township and range.

Form approved. OMB No. 2000-0042. Approval expires 9-30-86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

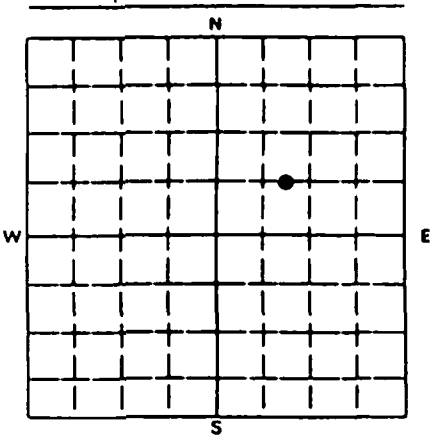
EPA

WELL REWORK RECORD

RECEIVED
MAY 28 1999
EPA REGION VIII

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. Co. P.O. Box 547 Poplar, MT 59255-0547	H & H Well Service P.O. Box 1244 Poplar, MT. 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
☒ Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	☒ Individual ☐ Area Number of Wells ____
Lease Name Huber	Date Rework Commenced Date Rework Completed	Well Number 5-D

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL USE ADDITIONAL SHEETS IF NECESSARY	WIRE LINE LOGS, LIST EACH TYPE	
	Log Types	Logged Intervals
Tubing Leak Developed - Hydrotest Tubing - Mechanical Integrity Test Attached. Cathodic Protection Installed	REVIEWED BY:	

CERTIFICATION DATE: 6/10/99

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
Raymond Reede District Manager	Raymond Reede	May 25, 1999

EPA Form 7520-12 (2-84)

Mechanical Integrity Test
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date 5 / 24 / 99 Time 5.07 ~~am~~/pm

Test conducted by: Raymond Reede

Others present: Dwayne Hagadone

Well:	Huber No. 5-D Salt Water Dis.	Well ID:	MT2779-04278
Field:	East Poplar	Company:	Murphy EXPRO
Well Location:	SW NE Section 19, T29N, R51E, Roosevelt County.	Address:	P.O. Box 547 Poplar, MT 59255-0547

Time	Test #1	Test #2	Test #3
0 min	500 psig	_____ psig	_____ psig
5	495		
10	492		
15	492		
20	492		
25	492		
30 min	492		
35	492		
40	492		
45	492		
50	492		
55	492		
60 min	492		
Tubing press	_____ psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

REVIEWED
BY: for
DATE: 6/10/99

Signature of EPA Witness: _____

See back of page for any additional comments & compliance followup.

Test Witnessed by Dwayne Hagadone with H & H Well Service

Form Approved. OMB No. 2000-0042. Approval expires 9-30-86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

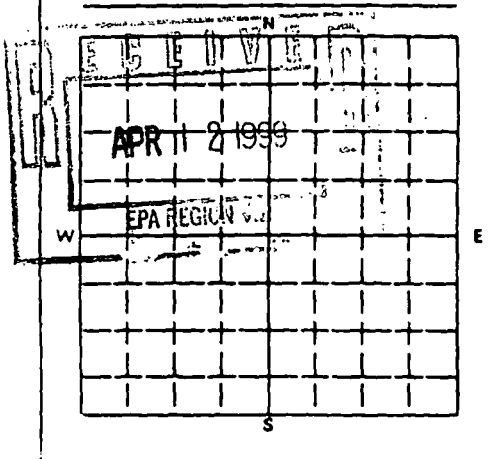
EPA

APR 12 1999

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE	NAME AND ADDRESS OF CONTRACTOR
Murphy Exploration & Prod. Co. P.O. Box 547 Poplar, MT 59255-0547	H & H Well Service P.O. Box 1244 Poplar, MT 59255-1244

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES



RECEIVED
APR 12 1999
EPA REGION VIII

STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface Location 1980 ft. from (N/S) N Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

WELL ACTIVITY	Total Depth Before Rework	TYPE OF PERMIT
XX Brine Disposal ☐ Enhanced Recovery ☐ Hydrocarbon Storage	Total Depth After Rework	XX Individual ☐ Area Number of Wells X
Lease Name: Huber	Date Rework Commenced Date Rework Completed	Well Number: 5-D

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK *(Indicate Additions and Changes Only)*

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

DESCRIBE REWORK OPERATIONS IN DETAIL
USE ADDITIONAL SHEETS IF NECESSARY

Packer Failed and Tubing Leak
Mechanical Integrity Test Attached

WIRE LINE LOGS, LIST EACH TYPE

Log Types	Logged Intervals

REVIEWED
BY:
DATE: 4/16/99

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE *(Please type or print)*	SIGNATURE	DATE SIGNED
	Raymond Reed	4-7-99

EPA Form 7520-12 (2-84)

Mechanical Integrity Test
Casing or Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date 4 / 7 / 99 Time 11:22 am/pm

Test conducted by: Ray Reede

Others present: Lloyd Ritland Dwayne Hagadone

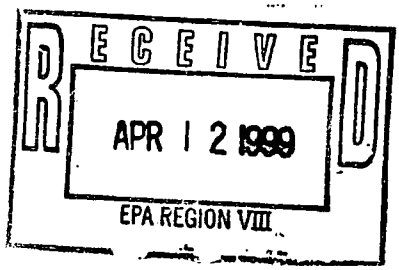
Well: Huber No. 5-D Salt Water Dis.	Well ID: MT2779-04278
Field: East Poplar	Company: Murphy EXPRO
Well Location: SW SE Section 19, T28N, R51E, Roosevelt County	Address: P.O. Box 547 Poplar, MT 59255-0547

Time	Test #1	Test #2	Test #3
0 min	485 psig	_____ psig	_____ psig
5	488		
10	490		
15	490		
20	490		
25	490		
30 min	490		
35	490		
40			
45			
50			
55			
60 min			
Tubing press	0 psig	_____ psig	_____ psig
Result (circle)	Pass Fail	Pass Fail	Pass Fail

REVIEWED
BY: _____
DATE: 4/14/99

Signature of EPA Witness: _____

See back of page for any additional comments & compliance followup.



RECORD OF COMMUNICATION

☒ PHONE CALL ☐ DISCUSSION ☐ FIELD TRIP ☐ CONFERENCE
☐ OTHER (SPECIFY)

(Record of item checked above)

TO: Murphy
Brian Davis (817) 877-7809

FROM: L. Carson

DATE: 2/12/98

TIME: 10:15

SUBJECT: Murphy Huber #5 (MT2779-04278)

SUMMARY OF COMMUNICATION

Called Brian Davis to respond to his questions: Brian out, so talked to Dave Petrie.

No letter is either Huber #5 or EPU #8-D files that says Murphy will P&A the EPU #8-D when Huber #5 is converted.

Only statement in Huber #5 permit application and in EPU #8-D Compliance File that "water now disposed of in EPU #8-D will be disposed of in Huber #5, when well is converted to injection. Huber #5 to be a replacement for EPU #8-D.

EPU #8-D Permit (1986) (MT2023-00023) says well shall be P&A after inj. ceases for 2 years.... AC all of 1997

Huber #5 Permit issued 8/5/97
Auth to Inj. 12/4/97
No Ann. Mont Rpt for 1997

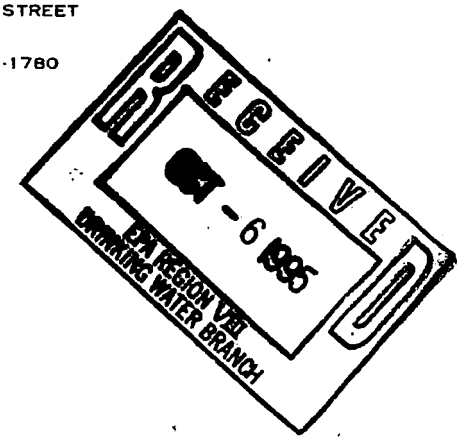
CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES
TO:

EPA Form 8 1330-1 (11-84) REPLACES EPA AO FORM 8100-8 WHICH MAY BE USED UNTIL SUPPLY IS EXHAUSTED.

MURPHY
EXPLORATION & PRODUCTION COMPANY

131 SOUTH ROBERTSON STREET
P.O. BOX 61780
NEW ORLEANS, LA 70161-1780
(504) 561-2811



October 5, 1995

OVERNIGHT MAIL

REF: 8WM-DW

U.S. E.P.A., Region VIII
999 18th Street - Suite 500
Denver, Colorado 80202-2466

Attn: Mr. Emmett R. Schmitz/8WM-DW
UIC Section
303-293-1416

RE: UNDERGROUND INJECTION CONTROL (UIC)
UIC Permit Application
MT 2779-04278
Huber No. 5 SWDW
SW NE SEC 10-T28N-R51E
East Poplar Field
Roosevelt County, Montana

Dear Mr. Schmitz:

You have indicated in your discussions with Murphy EXPRO's Poplar District Manager, Mr. Ray Reede, that we must revise Attachment "Q" (Plugging and Abandonment Plans) to the subject UIC Permit Application. We have made the required changes to Huber No. 5's Plugging and Abandonment Plan (EPA Form 7520-14) and it is attached.

You will note on the attachment, that the estimated cost to plug the well has been increased to $15,000. Murphy EXPRO notified St. Paul Fire & Marine Ins. Co. (Surety Bond No. 400 FX 8500) to provide $15,000 to cover the plugging of the Huber No. 5. Once our Insurance Dept. receives the document I'll forward a copy to you to go along with the previously submitted application.

Hopefully our application can now be deemed administratively and technically complete allowing for preparation of a Draft UIC Permit. But if not or if there are further questions, please give me a call in New Orleans at 504 561-2829.

Yours truly,

Bruce D. MacArthur
Sr. Operations Coordinator

BDM/ebh
Attachment

cc: Ray Reede
Poplar District Manager

(EPAUICPermitAppl)

G.D. Bpu #5

24 p

GZ-

68

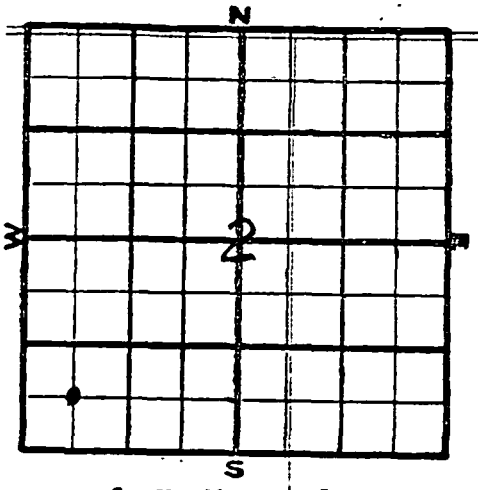
Log in file

7-A

LOCATE WELL CORRECTLY. This Log to Be Rendered in Four Copies

BEST COPY AVAILABLE

Form 51



Lease Fee Land (Zimmerman)

API # 25-085-05051

RECEIVED

BOARD OF RAILROAD COMMISSIONERS OF THE STATE OF MONTANA

SEP 18 1952

Paul T. Smith, Chairman

Austin B. Middleton, Commissioner | Leonard C. Young, Commissioner

OIL CONSERVATION BOARD AND BOARD OF RAILROAD COMMISSIONERS GAS WELL DIVISION

BILLINGS

13

LOG OF OIL OR GAS WELL

Company C. H. Murphy Jr., et al Address Box 76, Poplar, Montana

Lessor or Tract Zimmerman Field East Poplar State Montana MONTANA

Well No. 5 Sec. 2 T. 28 N R. 51 E Meridian County Roosevelt

Location 660 ft. { N. / S. } of South Line and 660 ft. { W. / E. } West Line of Sec. 2 Elevation 2111'
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed Harold Milburn

Title District Production Supt.

Date September 11, 1952 Address Box 76, Poplar, Montana

The summary on this page is for the condition of the well at above date.

Commenced drilling 6-13, 1952 Finished drilling 7-18, 1952

Oil or Gass Sands or Zones (Denote Gas by G)				Important Water Sands			
No. 1, from	720	to	730 G	No. 1, from		to	
No. 2, from	5556	to	5661 B	No. 2, from		to	
No. 3, from	5671	to	5681 B	No. 3, from		to	
No. 4, from	5796	to	5802	No. 4, from		to	
No. 5, from	5810	to	5824	No. 5, from		to	

CASING RECORD

Size Casing	Weight per Foot	Threads per Inch	Make	Amount	Kind of Shoe	Cut & Pulled From	Perforated From	Perforated To	Purpose
13 3/8	48	8	Nat'l	78'	None				Conductor
9 5/8	36	8	Nat'l	967'	Baker				Surface
5 1/2	15.50	8	Yngst	5818'	Howco				Oil String

CASING OR TOOLS LOST OR SIDETRACKED

From to Description

From to Description

From to Description

MUDDING AND CEMENTING RECORD

Casing Size	Where Set	Number Sacks of Cement	Methods Used	Mud Gravity	Amount of Mud Used
13 3/8	78	60	Pump & Plug		
9 5/8	2967	400	Pump & Plug		
5 1/2	5818	250	Pump & Plug		

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth Set ____

Adapters—Material ____ Size ____

SHOOTING RECORD

Size	Shell Used	Explosive Used	Quantity	Date	Depth Shot	Depth Cleaned Out
1"	Jet	Jet	32	7-22-52	5556-5569	
1"	Jet	Jet	28	"	5674-5681	
1"	Jet	Jet	24	"	5796-5802	

TOOLS USED

Rotary tools were used from 0 feet to 5921 feet, and from ____ feet to ____ feet

Cable tools were used from ____ feet to ____ feet, and from ____ feet to ____ feet

DATES

7-29, 1952 Put to producing 7-29, 1952

The production for the first 24 hours was 363 barrels of fluid of which 100 % was oil; ____ % emulsion; ____ % water; and ____ % sediment.

If gas well, cu. ft. per 24 hours ____ Rock pressure ____ lbs. per sq. in.

Gallons gasoline per 1,000 cu. ft. of gas ____

EMPLOYEES

A. Fortowit, Driller. ____, Driller.

J. P. Tiller, Driller. ____, Driller.

HISTORY OF OIL OR GAS WELL

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reasons for the work and its results. If there were any changes made in the casing, state fully, and if any casing was "side-tracked" or left in the well, give size and location. If the well has been dynamited, give date, size, position, and number of shots. If plug or bridges were put in to test for water, state kind of material used, position, and results of pumping or bailing.

FORMATION RECORD

From	To	Total Feet	Formation
1345			Eagle
2008			Niobrara
2356			Greenhorn
2557			Graneros
2708			Upper Muddy
2913			Muddy
3122			Dakota Silt
3195			Morrison
3910	TD		Ellis Formation
4096			Bierdon

FORMATION RECORD

From	To	Total Feet	Formation
4272			Piper Shale
4347			Piper Lm.
4403			Gyp. Springs
4600			Spearfish
4712			Amsden
4840			Heath
5142			Kibbey
5400			Charles
5917			"A" Zone
5656			"B"-1 Zone
5674			"B"-2 Zone
5706			"C" Zone
5818			Mission Canyon

Spudded 6-13-52. Drilled to 82' and set 13 3/8" conductor casing to 78'. Cemented with 60 sax, regular cement, 1% CaCl2. Plugged down 10:25 PM 6-14-52. Drilled to 980' and ran 9 5/8" 36# J-55 casing to 967.48'. Cemented with 400 sax, regular cement, 1% CaCl2. Plugged down 11:55 AM 6-18-52. On 6-19-52 the 9 5/8" was tested to 1000# for 30 min. Pressure held steady thruout the test.

Drilled 8 3/4" hole to 5560'. Then cored and drilled a 7 7/8" hole to total depth 5821'. The following drill stem tests were taken:

DST #1 5506-5516', Johnson Tool, straddle packers, ¼" bot. chk., no W.C. Tool open @ 3:20 AM for 90 min., good blow, approximately 1# TFD thruout, shut in 15 min. Rec. 279' oil, 279' mud cut w/oil and gas and 279' salt wtr. Chlorides 103,000 PPM. IBHFP - 0, FBHFP - 375#, BHSIP - 2875#, Hydro - 3125#.

DST #2 5508-5526', (Pine measurement), 5514-5532' (SCH measurement), Johnson Tools, ¼" bot. chk., no WC, tool open 3:30 AM for 4 hrs. Fair blow thruout (1# TFD). Shut in 15 min. Rec. 120' clean oil, 580' mud, heavely cut w/ oil & gas and s. wtr. (oil & water and mud very foamey). 2985' clear white salt water. Chlorides 94,000 PPM. IBHFP - 1350#, FBHFP - 1825#, BHSIP - 2975#, Hydro - 3250#. Lower chart indicated that bottom packer held OK.

DST #3 5649 - 5659' Johnson Tool, straddle packers, ¼" bot. chk., no WC. Tool open 7:59 AM for 4 hrs., strong blow first hour (2# TFD). Fair blow for remainder of test. Shut in 20 min. Rec. 5071' clean oil, 93' mud cut w/oil & gas, 196' black salt wtr., 196' clear s wtr. Chlorides 110,000PPM. IBHFP - 0 FBHFP - 2000#, BHSIP - 2950#, Hydro - 3350#.

DST #4 5667 - 5686'. Johnson Tool, straddle packers, ¼" bot. chk., no WC. Tool open 3:44 AM for 144 min. Strong blow, gas to surface in 68 min. Oil to surface in 93 min. Shut in 15 min. Ton shut in pressure 910#. Ton flowing pressure on ¼" chk. 210#. Rec. 5265' clean oil, 31' mud cut w/oil & gas, 372' s wtr. Chlorides - 75,000PPM. IBHFP - 350#, maximum BHFP with no choke 2200#, MBHFP on ¼" chk. 2325#. BHSIP 2950#. Hydro - 3325#

DST #5 5784' - 5792'. Straddle packers, 1" bot. chk., no WC. Tool open 3:22 AM for 4 hrs. Strong blow at first to weak blow at end of test. Closed 20 min. Rec. 2870' clean oil and 124' mud cut w/oil and gas. Was not able to squeeze and filtrate from the mud to run a chloride test. IBHFP - 0, FBHFP - 1100#, BHSIP - 3100#.

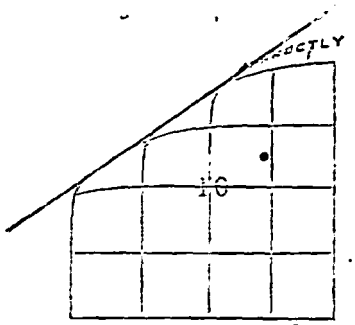
DST #6 5806 - 5815', 1" bot chk. no WC. Tool open @ 11:00 AM for 4 hrs. Strong blow at first to weak blow at end of test. Closed in 15 min. Rec. 3109' oil and 186' mud cut w/oil and gas. IBHFP - 100#, FBHFP - 1500#, BHSIP - 3150#, Hydro - 3100#. 5815' corrected to 5824'. Ran Schlumberger and Microlog. Schl. T.D. 5824'. Laid down drill pipe and collars and ran 177 jts. of 5½" 15.50# J-55 totaling 5805.65'. Landed 12.30' below RKB with shoe 6' from bottom @ 5818'. Pipe checked botm @ 5824'. Float collar @ 5782' & centralizers @ 5512', 5650', 5694', 5784', 5808'. Scratchers from 5507 - 10', 5514 - 20', 5642 - 48', 5661 - 67', 5684 - 90', 5786 - 92', 5802 - 05' and 5810 - 13'. Cemented w/250 sax reg. cement & 5 sax gel. Plug down @ 5:45. Pipe rotated freely thruout cementing operation. Temperature survey indicated top of cement @ 4100'. Drilled float collar and shoe. Bottom of casing 5818'. Total depth 5824'. Perforated with 4 jet shots per foot 5656 - 5664', 5674 - 5681', and 5796 - 5802'. Open hole from 5818' to 5824'. Ran wire line junk-basket and casing gauge. Set Baker Model "D" packer by wire line method @ 5705'. Ran 2 3/8" O.D. JJJ tubing to 5775' and seated tubing in packer. Installed Xmas tree and lifted tubing clear of packer and displaced mud with water. Well began flowing immediately @ 11:15 PM and cleaned itself of water into burning pit until 5:00 AM, 7-23-52. Tubing lowered into packer and Xmas tree connected up. CSIP 850#. TSIP 800#. Pulled tubing pressure down to 300# and CP held steady. Turned into heater treater and tanks at 7:00 AM 7-23-52. Produced 363 bbls. oil in 24 hrs.

LOG OF OIL OR GAS WELL

13

STATE OF MONTANA
BOARD OF OIL AND GAS CONSERVATION
OIL CONSERVATION BOARD AND BOARD OF
RAILROAD COMMISSIONERS
BILLINGS
OIL AND GAS SUPERVISOR'S GAS WELL DIVISION

RECEIVED



(SUBMIT IN TRIPLICATE)
TO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF MONTANA
BILLINGS OR SHELBY

Form No. 4
(Gen. Rule 206.3 & 231)

LOG OF WELL

Signal Drilling Co.

Company E. A. Polumbus, Jr. Lease Huber Well No. 5

Address 220 C. A. Johnson Bldg. Denver, Colorado 80202 Field (or Area) East Poplar

The well is located 1980' ft. from (N) (S) line and 1420' ft. from (E) (W) line of Sec. 10

Sec. 10; T. 28N; R. 51E; County Roosevelt; Elevation 2092 (D.F. R.B.)

Commenced drilling November 26, 1968; Completed February 6, 1969

The information given herewith is a complete and correct record of the well. The summary on this page is for the condition of the well at the above date.

Completed as Oil Well
(oil well, gas well, dry hole)

Signed D. J. Law

Title Petroleum Engineer

Date February 18, 1969

IMPORTANT ZONES OF POROSITY

(denote oil by O, gas by G, water by W; state formation if known)

From 3225 to 3242 (W) Dakota		From	to
From 4872 to 4910 (O?) Heath		From	to
From 5458 to 5686 (O) Charles		From	to
From 7242 to 7267 (O) Nisku		From	to

CASING RECORD

Size Casing	Weight Per Ft.	Grade	Thread	Casing Set	From	To	Sacks of Cement	Cut and Pulled from
8-5/8	24	J-55	8 Rd.	1028	Surface	1028	575	-
5-1/2	14 and 17	J-55 & N-80	8 Rd.	7307	Surface	7307	600	-

TUBING RECORD

Size Tubing	Weight Per Ft.	Grade	Thread	Amount	Perforations
2-7/8	6.5	J-55	8 Rd.	7106	Open end

COMPLETION RECORD

Rotary tools were used from Surface to 7307

Cable tools were used from to

Total depth 7307 ft.; Plugged back to 7272 T.D.; Open hole from to

PERFORATIONS			ACIDIZED, SHOT, SAND FRACED, CEMENTED			
Interval From	Interval To	Number and Size and Type	Interval From	Interval To	Amount of Material Used	Pressure
7262	7264	6-28 gm Jets	7262	7264	250 gal. 15% HCL	1600 Max. to 700

Well No. 7-A

Well Name: C.H.Murphy et al - Zimmerman #5

Structure: East Poplar Unit

County: Roosevelt

State: Montana

Twp. 28 N.

Rge. 51 E.

Sec. 2

Location: C SW SW 660 N/S 660 E/W(Log)

Surface Elevation and Formation: 2114 DF

Landowner: Zimmerman Fee API # 25-085-05051

Lessee: C.H.Murphy et al

Drilling Company: C.H.Murphy et al

Representative in Charge: Harold Milan, Dist Production Supt

Contractor or Driller:

Date Location: App 6-9-62 FCP)

Date Spudded: 6-13-52

6-20-52 Drilling 800 (FCP)

6-27-52 Drilling 1000, 967' of 9-5/8" w/ 400 sx (FCP) LOG IN FILE

7-3-52 Drilling 4034 Niobrara 1995 (FCP)

7-11-52 Drilling 5413, Greenhorn 2235 Ellis 3790; Piper Sh 4268; Piper Lm; 4345; Amsden 4695; Kibbey 5120 (FCP)

7-18-52 Coring 5757, DST 564 9-5659 open 4 hrs, strong blow; SI 20 min; rec 5071' clean oil, 93' OCM:

Completed	Total Depth	Formation
7-20-52	5824 Log 5384	Pind.
Oil	Gas	Water

I.P. 363 BOPD

Final Result

7-18-52 DST 5649-5659 open 4 hrs. strong blow; SI 20 min; rec 5071' clean oil, 93' OCB: FP 2000#, SI 2950#; DST 5667-5686 open 1 hr 144 min, strong blow; gas and oil to surface in 68 min; SI 15 min; rec 5265' clean oil, 31' mud; AP 2325; SI 2950 (FCP)

7-25-52 5½" at 5805 w/ 372 sx. Kibbey 5120; Charles 5400; Madison 5810?; DST 5784-92 open 4 hr strong blow; SI 20 min, rec. 2870' clean oil, 124' OCB; FP 1100, SI 3100; TD 5834; perf 5656-64 4 holes to foot, 5674-81, 4 holes to ft; 5797-5802, 4 holes to ft; flowing at rate of 20 BOPH (FCP)

8-2-52 Comp 7-20-52, I.P. 363 BOPD (FCP)

Sands:
720-730 G.
5656-5664
5674-5681
5796-5802
5818-5824

Casing Record:
78' of 13-3/8" w/ 60 sx.
967' of 9-5/8" w/ 400 sx.
5818' of 5½" w/ 250 sx.

SEE LOG FOR WELL HISTO

MURPHY CORPORATION

EAST POPLAR UNIT WELL NO. 5

LOCATION: C SW SW Section 2, Township 29 North, Range 51 East, Roosevelt County, Montana

ELEVATION: 2102' Ground; 2114' K.B.

SPUDDED: Spudded June 13, 1952 at 7:00 p.m.

COMPLETED: July 23, 1952

TOTAL DEPTH: 5815' Driller = 5824' Schlumberger

June 13: Spudded 7:00 p.m.

June 14: Set 62' of 13-3/8" conductor pipe at 78' with 60 sacks. Plug down 10:25 p.m. 6-14-52.

June 15-18: Drilled to 980'. Set 953.73' 9-5/8" casing at 967.48' with 400 sacks regular cement. Plug down 11:55 a.m. 6-18-52.

June 19-July 8: Drilled to 5460. Cut and pulled Core No. 1, 5460-5501, recovered 30'.

July 9-11: Cut and pulled Core No. 2, 5501-5540', rec. 20'. Ran DST #1, 5506-5516. Ran DST #2 5508-5526'. Ran Schlumberger electrical and micrologs.

July 12-13: Drilled to 5629. Cut and pulled Core No. 3, 5629-5659, recovered 30'. Cut and pulled Core No. 4, 5659-5701, recovered 40'.

July 14-15: Ran DST #3, 5649-5659. Ran DST #4, 5667-5686. Cut and pulled Core No. 5, 5770-5800, rec. 30'.

July 16-18: Ran DST #5, 5784-5792. Cut and pulled Core No. 6, 5802-5815', rec. 13'. Ran DST #6, 5806-5815'.

July 19 T.D. 5815' corrected to 5824'. Ran electrical survey and microlog. Ran 5805.65' 5½" O.D. casing and cemented at 5824' with 250 sacks regular cement. Plug down at 5:45 a.m. 7-19-52.

July 20-23: T.D. 5824' Schl. WOC. Well undergoing completion, as set forth under "Completion Summary." Rig released at noon 7-23-52.

DRILLING BIT RECORD

No.	Make	Size	Type	Ser. No.	From	To	Foot-Age	Hours	Condition and Remarks
1	Reed	17½	Reamer		0	80	80	5	Good
2	Hughes	12¼	OSC-3	91534	80	980	900	12	M. D.
3	Hughes	8-3/4	OSC-3-J	76096	980	2241	1261		M.D. 1 Jet Plugged
4	Reed	"	LT-3-J	95713	2241	2670	429	13	Gage cone bearings bad, bit balled up
5	Hughes	"	OSC	12906	2670	3236	566	12¼	D.
6	"	"	"	12599	3236	3433	197	9	D.
7	"	"	"	10473	3433	3530	97	7½	D.
8	"	"	OSC-1-J	10597	3530	3577	47	6-3/4	V.D.
9	"	"	OSC	58825	3577	3783	206	15½	D.
10	"	"	OSC-1-J	93698	3783	4019	236	17½	D.
11	Reed	"	T-J	95711	3989	4143	154	24-3/4	D. Washed out. Lost Jet in hole
12	Hughes	"	OSC-J	92318	4143	4391	248	"	M.D.
13	"	"	"	92317	4391	4520	129	16½	V.D.
14	Reed	"	2-HM	10913	4520	4651	131	21¼	D.

EAST POPLAR UNIT NO. 5

Core Bit Record

7-7/8" Bit No. D-214

Core No.	From	To	Footage
1	5460	5501	41
2	5501	5540	39
3	5627	5657	30
4	5657	5697	40
5	5770	5800	30
6	5802	5815	13

Total Footage: 193

ELECTRO LOG DATA

TYPE OF LOG	INTERVAL LOGGED
Schlumberger Electric Logs:	
Electrical Survey	74-5823'
Detail	74-5823'
Microlog 5"	2340-2450'
"	2898-2959'
"	4330-4418'
"	4480-5621'
Laterolog	5300-5820'
Laterolog Detail	5800-5820'

LOG TOPS

	Depth	Datum	Thickness
Judith River	753	+1361	
Eagle	1148	+ 966	
Niobrara	2008	+ 106	
Carlile	2154	- 40	
Greenhorn	2356	- 242	
Graneros	2557	- 443	
Upper Muddy	2708	- 594	
Muddy Sd.	2913	- 799	
Dakota Silt	3122	-1008	
Morrison	3495	-1381	
Swift	3567	-1453	
Rierdon	3910	-1796	
Piper Shale	4272	-2158	
Piper Lime	4347	-2233	
Gypsum Sprgs	4403	-2289	
Spearfish	4609	-2495	
Amsden	4721	-2607	
Heath	4840	-2726	
Otter	5009	-2895	
Kibbey	5138	-3024	
Kibbey Ls.	5304	-3190	
Madison	5400	-3286	
A-1 Zone	5490	-3376	3'
A-2 Zone	5505	-3391	4'
A-3 Zone	5517	-3403	8'
A-4 Zone	5530	-3416	15'
B-1 Zone	5656	-3542	8'
B-2 Zone	5674	-3560	18'
B-3 Zone	5693	-3579	6'
B-4 Zone	5723	-3609	5'
B-5 Zone	5764	-3650	?
C-1	5804	-3690	3'
C-2	----	-----	----

C O R E D E S C R I P T I O N S

Core No. 1

5460-5501 Rec. 28'

C.T. 6, 5, 8, 6, 6/ 6, 5, 5, 7, 7/ 8, 7, 8, 8, 8/ 8, 7, 8, 10, 9/ 6, 5, 6, 8, 35/ 13, 27, 33, 14, 42/ 45, 18, 9, 5, 2/ 3, 11, 35, 23, 29/ 23

2'6" Anhydrite, light gray to white, fine crystalline, medium hard, dense, few black shale partings. No show.

1'6" Limestone, brownish-gray, fine crystalline with numerous white coarse crystals of calcite, numerous black shale partings, medium soft. No show.

1'6" Limestone, medium gray, fairly sandy, fine crystalline, medium soft, numerous thin sandy laminations, numerous black shale partings, looks wet. No show.

2'6" Limestone, light gray, very fine crystalline, numerous black shale partings, fairly soft, few thin streaks of white, medium to coarse crystals of calcite. No show.

9'0" Anhydrite, brownish gray, fine to medium crystalline, fairly soft mass with few thin streaks dark gray medium, crystalline limestone. No show.

0'6" Limestone, light gray, fine crystalline, medium hard, good vuggy porosity, numerous well developed vertical fractures partially filled with calcite, good oil odor in vugs and along fracture planes, some free oil in vugs and on fracture planes, vugs range in size from pin point to 1/4".

0'6" / Limestone, medium brownish-gray, fine crystalline, numerous thin black shale partings, fairly soft. No show.

10'0" Limestone, dark brownish-gray, fine crystalline, very muchly brecciated and broken up, few fairly well developed fractures with calcite crystals on fracture planes, very slightly porous in streaks, slight water odor. No show.

CORE DESCRIPTIONS

Core No. 2

5501-5540 Rec. 20'

C. T. 16, 14, 9, 10, 12/ 12, 13, 14, 10, 11/ 10, 18, 10, 10, 11/ 11, 9, 9, 10, 10/ 12, 14, 18, 10, 10/ 7, 6, 6, 6, 6/ 5, 6, 6, 7, 6/ 5, 6, 6, 15

1' Dolomite, light gray, very fine crystalline, fairly soft, with numerous thin shale partings, slight earthy text. No show.

2'6" Anhydrite, light gray, fine crystals, medium soft, with numerous thin streaks dark gray, fine crystalline, medium hard, dolomite, numerous thin black shale partings. No show.

5'0" Anhydrite, light gray, fine crystalline mass dense, fairly hard, No show.

7'0" Limestone, dark brownish-gray, fine crystalline, very hard, very highly fractured with numerous well developed irregular fractures throughout. Some fractures filled with white anhydrite, good vuggy porosity with vugs ranging in size from pin point to $\frac{1}{2}$". Some vugs filled with calcite crystals. Good oil odor throughout, good golden yellow fluorescence, free oil bleeding from vugs and fractures in core.

4'6" Limestone, brownish-gray, fine crystalline, fairly hard, very highly fractured except for 1' in top of unit which is fairly hard and dense. Fractures are well developed with few calcite crystals along fracture planes. No show.

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Core No. 3

5629-5659 Rec. 30'

C. T. 10, 7, 8, 8, 11/ 9, 11, 9, 10, 10/ 7, 6, 7, 6, 7/ 8, 10, 7, 9, 8/ 10, 9, 7, 6, 7/ 5, 5, 4, 4, 7/

0'6" Anhydrite, very light brownish-gray, medium hard, fine crystalline, with streaks of dolomite, medium to dark gray, very slightly fractured, some vuggy porosity with vugs ranging in size from pin point to 1/4". No show.

2'0" Dolomite, medium gray to dark brownish-gray, medium hard, fine to very fine crystalline, slightly banded, several irregular tight fractures with small amount slippage, some washing along fractures and in areas consisting of medium crystalline salt, few thin streaks intercrystalline porosity, some permeability along fractures. No show.

CORE DESCRIPTIONS

Core No. 3 continued:
5629-5659 Rec. 30'

1'6" 33	Anhydrite, light brownish-gray, medium hard, fine crystalline, numerous irregular black shale partings. No show.
1'5" 35	Dolomite, medium dark gray, hard, very fine to microcrystalline, slight fractures with medium to coarse crystalline salt deposited along fractures, some permeability along fractures. No show.
1'0" 36	Anhydrite, brownish-gray, medium hard, very fine crystalline with numerous irregular black shale partings. No show.
1'0" 37	Dolomite, medium gray, medium hard, very fine crystalline with some fracturing and solutioning of secondary salt along fracture planes, slightly vuggy in fracture area probably due to solution of salt. No show.
1'0" 38	Anhydrite, medium dark brownish-gray, medium hard, very fine crystalline. No show.
1'6" 40	Dolomite, medium gray, medium hard, microcrystalline, few scattered pyrite crystals, slight vuggy porosity with vugs ranging in size from pin point to 1/4", few inclusions and streaks of light gray anhydrite. No show.
3'6" 43	Anhydrite, light gray, very salty, medium soft, medium to fine crystalline, very vuggy with vugs ranging in size from 1/4" to 1". All vugs probably caused by solution of salt. No show.
7'6" 51	Anhydrite, brownish-gray, medium hard, fine crystalline, mass dense. No show.
2'0" 53	Limestone, brownish-gray, medium soft, microcrystalline with numerous rectangular shaped calcite crystals, slightly porous, strong sulfur odor on fresh break, entire unit looks wet, slight trace of spotted very light green fluorescence, some small tight fractures, fair porosity and permeability.
2'0" 55	Limestone, medium dark gray, medium soft, fine crystalline to microcrystalline, slightly fractured with all fractures fairly tight, slight amount vuggy porosity with vugs ranging in size from pin point to 1/4", some streaked intercrystalline porosity, some stain in porous streaks, yellow-green fluorescence along porous streaks, slight sulfur odor on fresh break.
4'0" 59	Limestone, medium dark gray, medium soft, fine crystalline, good intercrystalline porosity, numerous pin point vugs with probable permeability, few fairly well developed fractures in bottom 1'6", oil bleeding freely from upper 1' of unit, few scattered spots with oil bleeding in lower 3' of unit, slight sulfur odor on fresh break, entire unit looks wet.

CORE DESCRIPTIONS

Core No. 4

5659-5701 Rec. 40'

C. T. 14, 12, 12, 10, 11/ 10, 10, 10, 8, 8/ 4, 7, 6, 7, 8/ 10, 10, 11, 11, 12/ 13, 9, 4, 7, 17/ 13, 9, 13, 17, 13/ 11, 3, 3, 5, 6/ 14, 18, 16, 13, 16/

10'6" 69 Anhydrite, medium to dark brownish-gray, amorphous to microcrystalline, medium hard mass, dense. No show.

11'0" 80 Limestone, dark brownish gray, very fine crystalline, fair intercrystalline porosity, some vuggy porosity with vugs ranging in size from pin point to $\frac{1}{2}$". Few fairly well developed tight irregular fractures, good oil odor and golden yellow fluorescence in top 1' of unit, faint odor and staining in bottom 10'. Bottom 10' of unit looks wet.

11'0" 91 Limestone, dark brownish-gray, very fine to microcrystalline, no intercrystalline porosity, numerous short, tight, irregular fractures, oil stain along fractures, few fractures filled with anhydrite, fair oil odor along fracture planes, dull yellow fluorescence on fracture planes. Mass of core looks wet.

5' 0" 96 Dolomite, dark brownish-gray, fine to medium crystalline, slight earthy texture, fairly hard, few fairly well developed fractures. Entire unit looks wet. No show.

2' 0" 98 Anhydrite, dark brownish-gray, amorphous to microcrystalline, medium hard dense. No show.

0' 6" Dolomite, light gray, very sandy with sand grains fine to very fine and rounded, very slight porosity, looks wet. No show.

1' 0" 5700 Anhydrite, dark brownish-gray, microcrystalline, medium hard, few thin black shale partings. No show.

1' 6" 5701 Dolomite, light gray, very sandy withsand grains fine to very fine and rounded, very slight porosity, very highly fractured with well developed open vertical fractures, few large anhydrite crystals on fracture planes. Entire unit looks wet. No show.

Core No. 5

5770-5800 Rec. 30'

C. T. 8, 7, 11, 11, 16/ 15, 15, 17, 15, 14/ 15, 13, 15, 12, 15/ 13, 13, 10, 9, 14/ 6, 9, 5, 5, 15/ 7, 6, 7, 8, 7/

13'0" Limestone, dark brownish-gray, medium hard, microcrystalline with numerous thin streaks and inclusions light gray anhydrite throughout unit. Single well developed vertical fractures from 5773-73½, fracture plane covered with calcite crystals, single thin tight vertical fracture from 5775-78, pale yellow fluorescence along fracture plane, some staining on fracture plane, entire unit becoming dolomitic toward base. No show in mass of core.

B-5

1'0" Dolomite, brownish-gray, microcrystalline, very hard and dense. No show.

3'6" Limestone, dark brownish-gray, microcrystalline, medium hard, few thin black shale partings, few thin light gray streaks anhydrite. No show.

Top 5787.5

5'6" Limestone, brownish-gray, fine crystalline, medium hard, few medium crystals calcite in mass of unit, very highly fractured with well developed vertical fractures running length of unit, majority of fracture planes covered with large crystals white calcite, good oil stain and yellow-gold fluorescence on fracture planes, no porosity or permeability in mass of core, all show along fracture planes.

2'0" Limestone, dark brownish-gray, fine crystalline, medium hard, dense. No show.

2'0" Dolomite, dark gray to black, very argillaceous, amorphous to microcrystalline, medium hard. No show.

3'0" Limestone, dark brownish-gray, microcrystalline, medium hard, few very thin tight hairline fractures, slight sulfur odor along fracture plane. No show.

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Core No. 6

5802-5815 Rec. 13'

C. T. 11, 12, 18, 18, 15/ 18, 17, 24, 10, 8/ 9, 7, 8,

10'6" Limestone, brownish-gray, very fine crystalline, very hard numerous thin tight hairline fractures with few fairly well developed short vertical fractures, single thin black stylolite parting 4' from top of unit, few small white calcite crystals along fracture planes. No show.

C-1

CORE DESCRIPTIONS

Core No. 6 continued:
5802-5815 Rec. 13'

2'6" Limestone, dark brownish-gray, very fine crystalline, very hard, very highly fractured with well developed vertical fractures, faint oil odor along fracture planes, pale dull yellow fluorescence on some parts of fracture planes. Faint oil odor in mass of core in bottom 6".

D R I L L S T E M T E S T S

DST #1 5506-5516, Johnson Tool, Straddle packers, ½" bottom choke, no water cushion. Tool open at 3:20 AM for 90 minutes, good blow, approximately 1# T.F.P. throughout, shut in 15 minutes. Recovered 279' of oil, 279' mud cut with oil and gas and 279' salt water. Chlorides: 103,000 P.P.M.
IBHFP: 0#, FBHFP: 375#, BHSIP: 2875#, Hydro: 3125#

DST #2 5508-5526 (pipe measurements), 5514-5532 (Schlumberger measurements), Johnson Tool, ½" bottom choke, no water cushion, tool open 3:30 AM for four hours. Fair blow throughout (1# T.F.P.) Shut in 15 minutes. Recovered 120' clean oil, 580' mud, heavily cut with oil and gas and salt water (oil and water and mud very foamy). 2985 clear white salt water. Chlorides: 94,000 P.P.M.
IBHFP: 350#, FBHFP: 1825#, BHSIP: 2975#, Hydro: 3250#.
Lower chart indicated bottom packer held O.K.

DST #3 5649-5659, Johnson Tool, straddle packers, ½" bottom choke, no water cushion. Tool open 7:59 AM for four hours, strong blow first hour (2# T.F.P.). Fair blow for remainder of test. Shut in 20 minutes. Recovered 5071' clean oil, 93' mud cut with oil and gas, 186' black salt water, 186' clear salt water.
Chlorides: 110,000 P.P.M.
IBHFP: 0#, FBHFP: 2000#, BHSIP: 2950#, Hydro: 3350#

DST #4 5667-5686, Johnson Tool, straddle packers, ½" bottom choke, no water cushion. Tool open at 3:44 AM for 144 minutes. Strong blow. Gas to surface in 68 minutes, oil to surface in 93 minutes. Shut in 15 minutes. Top shut in pressure: 910#; top flowing pressure on ½" choke: 210#; Recovered 5265' of clean oil, 31' mud cut with oil and gas and 372' salt water. Chlorides: 75,000 P.P.M.
IBHFP: 350#, maximum BHFP with no choke: 2200#, MBHFP on ¼" choke: 2325, BHSIP: 2950#, Hydro: 3325#.

DRILL STEM TESTS

DST #5 5784-5792, Straddle packers, ½" bottom choke, no water cushion. Tool open at 8:22 AM for four hours. Strong blow at first to weak blow at end of test. Closed 20 minutes. Recovered 2370' clean oil and 124' mud cut with oil and gas. Was unable to squeeze any filtrate from the mud to run a chloride test. IBHFP: 0#, FBHFP: 1100#, BHSIP: 3100#, Hydro: 3400#

DST #6 5806-5815, ½" bottom choke, no water cushion . Tool open at 11:11 PM with strong blow (5 gal. bucket for 2 minutes) diminishing to weak steady blow at end of test; tool closed 3:11 PM to 3:26 PM. Recovered 3109' clean oil, 186' mud, oil and gas cut. IBHFP: 100#, FBHFP: 1500#, BHSIP: 3150#, Hydro: 3400# Gas 744' from top.

C O M P L E T I O N D A T A

Total Depth: Driller equals 5815'; Schlumberger equals 5824'.

Ran 177 joints of 5½", 15.50#, J-55, 8-r thd. American casing (5805-56'), landed 12.30' below RKB with guide shoe 6' off bottom at 5818'. Pipe checked bottom at 5824'; float collar at 5782' and centralizers at 5512', 5650', 5694', 5784', 5808'; scratchers at:

5507 to 5510
5514 to 5520
5642 to 5648
5661 to 5667
5684 to 5690
5786 to 5792
5802 to 5805
5810 to 5813

Cemented pipe with 250 sacks of regular cement with 5 sacks of gel. Plug down at 6:45 A.M., 7-19-52. Pipe rotated freely throughout cementing operations. Temperature survey indicated top of cement at 4100 feet.

Tested casing with 1000# for 30 minutes, held okay. Drilled out to 5824'. Perforated with 4 jet shots per foot, 5656-5664, 5674-5681, 5796-5802. Ran wire line junk basket and casing gauge. Set Baker Model "D" Packer by wire line method at 5775'.

Ran 187 joints of 2 3/8", 4.70#, J-55, EUE, 8-r thd. tubing, landed 11.34' below RKB with subs spaced as follows:

Distance below RKB	11.34'
1 jt. 2 3/8" tubing	31.23'
2 subs	18.17'
185 jts. 2 3/8" tubing	5682.32'
Baker safety joint	.90'
1 joint 2 3/8" tubing	31.04'
Top of Baker "D" Pkr	5775.00'
2 Baker seal nipples	2.63'
Blank hole tubing	16.73'
Perforated nipple, bull plugged	2.06'
Bottom of tubing	5796.42'

COMPLETION DATA

8-21-52

Acudized "B" Zone with 250 gallons of regular acid, pumped into casing and followed with 107 barrels of oil. Injected 3/4 barrel per minute at 2300#. Pressure fell to 1200# when acid hit. Began injecting 2.5 barrel per minute. On a 10 hour test after acidizing, flowing through 1/2" casing choke for 2 hours and 1/4" dasing choke for 8 hours, well made 600.13 barrels of oil. CP on 1/4" choke was 300#

7-22-52

Installed Xmas Tree and lifted tubing clear of packer. Displaced mud with water. Well began flowing immediately at 11:15 P.M., 7-22-52, and cleaned itself of water into burning pit until 5:00 A.M. Tubing was lowered into packer and Xmas Tree connected. CSIP: 850#; TSIP: 800#. Pulled tubing pressure down to 300# and C.P. held steady. Turned into heater treater and tanks at 7:00 A.M., 7-23-52. Rig released at 12:00 noon 7-23-52.

CASING PRODUCTION TESTS: (B Zone)

Time	Choke	FP	Per cent B S & W	Water, bbls.	Oil, bbls.	Daily Rate BOPD
9 hours	16/64"	100#	9.9(wash)	14.9	135.42	360.50
4 hours	10/64"	300#	0.9	----	48.82	293.00
4 hours	8/64"	475#	0.2	----	32.56	192.30

TUBING PRODUCTION TEST: (C & McGowan Zones)

Time	Choke	FP	Per cent B S & W	Water, bbls.	Oil, bbls.	Daily Rate BOPD
3 hours	16/64"	100#	8.0	3.30	37.97	333.00

SAMPLE DESCRIPTION

0-753	No samples.
753	Judith River Top. No samples.
1148	Eagle Top
1148-1530	No samples.
1530-1650	Shale, light gray, soft, gummy, silty, slightly bentonitic, limy.
1650-1755	Shale, light gray, firm, limy, slightly pyritic.
1755-1820	Shale, light gray, sandy, soft, sticky, limy, slightly pyritic.
1820-2008	Shale, light gray, soft, sandy, slightly calcareous, some chert.
2008	Niobrara Top.
2008-2016	Shale, medium gray, firm speckled with small white chalky inclusions; calcareous 2016-2154; shale, medium gray, medium soft, slightly pyritic, calcareous.
2154	Carlisle Top
2154-2356	Shale, medium gray, medium soft, fissile, slightly pyritic.
2356	Greenhorn Top
2356-2410	Shale, dark gray, chunky, very calcareous with numerous small, gray-brown partings and inclusions of calcareous material.
2410-2557	Shale, dark gray to black, slightly calcareous, slightly micaceous.
2557	Graneros Top
2557-2708	Shale, black, medium soft, fissile, slightly micaceous.
2708	Upper Muddy Top
2708-2913	Shale, dark gray, micaceous, silty in streaks, calcareous in streaks.

SAMPLE DESCRIPTION

2913	Muddy Top
2913-2956	Sandstone, light gray, soft, friable, very fine grained, angular, calcareous matrix, good porosity.
2956-3122	Shale, black, medium hard, slightly fissile.
3122	Dakota Silt & Dakota Sands Top
3112-3180	Siltstone, light gray, soft, slightly micaceous.
3180-3210	Sandstone, light gray to very light brown, medium soft, very fine grained
3210-3250	Shale, black to dark gray, medium soft, splintery, few thin stringers of white to light gray, fine grained sandstone.
3250-3410	Sandstone, light gray, medium soft, fine grained, angular sand grains, few thin streaks black shale.
3410-3430	Shale, dark gray to black, medium firm, slightly silty.
3430-3495	Sandstone, light-gray, soft, medium hard, medium to fine grained, few thin streaks dark gray shale.
3495	Jurassic-Morrison Top
3495-3550	Shale, black, carbonaceous, medium hard, splinter, fine micaceous with some sandstone, slightly glauconitic.
3550-3610	Sandstone, light gray, medium soft, fine grained, slightly glauconitic, well sorted, some gray-brown and gray-black shale streaks.
3610-3650	Shale, brownish-gray and black, medium soft, very silty, slightly fissile.
3650-3700	Sandstone, light gray, medium hard, very fine grained, slightly glauconitic, few thin streaks dark gray to black shale.
3700-3910	Shale, light gray, medium soft, sandy, slightly calcareous.
3910	Ellis Top
3910-3960	Sandstone, light gray, medium soft, fine grained, very calcareous.
3960-4040	Shale, black to dark gray, firm, with few thin streaks light gray sandstone.
4040-4096	Shale, brownish-gray, medium soft, few small inclusions ankerite.

SAMPLE DESCRIPTION

4096	Rierdon Top
4097-4138	No returns.
4138-4272	Shale, dark gray to black, medium soft, splintery, calcareous, few thin stringers of soft light gray limestone.
4272	Piper Shale Top
4272-4291	Shale, dark reddish brown, soft, very anhydritic with stringers of anhydrite.
4291-4347	No returns. High viscosity mud.
4347	Piper Lime Top
4347-4364	No returns.
4364-4403	Limestone, dark to medium brown, hard, micro-crystalline, few thin stringers of red brown shale.
4403	Gypsum Springs Top
4403-4485	Shale, light greenish-gray, medium soft, slightly fissile, calcareous, few thin stringers of white anhydrite.
4485-4600	Limestone, light gray to medium brown, medium hard, micro-crystalline to amorphous, few stringers of gray-green, red and green shale.
4600	Spearfish Top
4600-4614	Shale, red, soft, calcareous, becoming silty toward bas.
4614-4630	Limestone, tan to light gray, hard, micro-crystalline.
4630-4693	Shale, red, soft, silty, with few thin streaks very fine grained white sandstone, becoming calcareous toward base.
4693-4712	Sandstone, red, medium soft, very fine grained, calcareous.
4712	Amsden Top
4712-4730	Dolomite, pink, medium hard, micro-crystalline.
4730-4755	Shale, vari-colored (red, lavender, green, gray) medium soft, calcareous.
4755-4840	Limestone, light gray, soft, microcrystalline to amorphous, chalky in spots, dolomitic. Few thin stringers gray-green shale, and red shale.

SAMPLE DESCRIPTIONS

4840	Heath Top
4840-4870	Shale, red-brown, medium soft, calcareous, becoming silty toward base.
4870-4884	Sandstone, reddish-brown, very calcareous, very hard, fine grained.
4884-4910	Shale, red-brown, firm, calcareous.
4910-4940	Sandstone, white, fine to very fine grained, angular, calcareous cement, very hard.
4940-4974	Shale, vari-colored, firm, calcareous.
4974-4985	Sandstone, reddish-brown, very fine grained, very hard and tight, very calcareous.
4985-5009	Shale, gray-green, firm, slightly micaceous, calcareous.
5009	Otter Top
5009-5142	Alternating beds of gray-green calcareous shale and dense, light gray, limestone.
5142	Kibbey Top
5142-5165	Siltstone, reddish-brown, slightly calcareous, becoming sandy toward base.
5165-5307	Sandstone, predominantly red with few streaks light gray to white, fine to medium grained, slightly calcareous, grains rounded to sub-rounded.
5307-5330	Limestone, light to medium brown, medium hard, microcrystalline, numerous small inclusions of clear calcite.
5330-5400	Sandstone, reddish-brown, very fine grained, very hard and tight, with numerous thin streaks of dark gray to black shale.
5400	Charles Top
5400-5425	Limestone, light gray, crystalline, few thin streaks white anhydrite, some brick-red siltstone.
5425-5450	Limestone, brownish-gray, crystalline, dense, with few streaks of white anhydrite.
5450-5460	No cuttings.

SAMPLE DESCRIPTIONS

5460-5502 Core #1 Recovered 28'.

5502-5540 Core #2 Recovered 20'.

5540-5550 Limestone, light gray, crystalline, dense, with some white anhydrite.

5550-5560 Dolomite, light gray, microcrystalline, dense, with some dense light gray limestone.

5560-5585 Anhydrite, white, soft, with some dense light gray crystalline limestone.

5585-5610 Salt, clear, with some white anhydrite.

5610-5629 Anhydrite, white, salty, medium soft.

5624-5629 SLM. Depth correction.

5629-5659 Core #3 Recovered 30'.

5659-5701 Core #4 Recovered 40'.

5701-5715 Anhydrite, white, medium soft with some dense gray dolomite.

5715-5745 Limestone, brownish-gray, dense with few streaks gray dolomite and white anhydrite.

5745-5750 Anhydrite, white, soft.

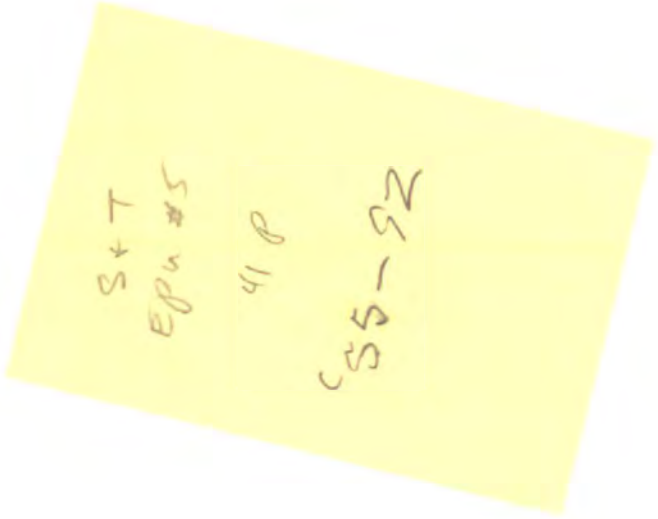
5750-5770 Limestone, gray, medium hard, crystalline with streaks white anhydrite.

5770-5800 Core #5 Recovered 30'.

5800-5802 Drilled packer rubbers in hole.

5802-5815 Core #6 Recovered 13'

T.D. Driller - 5815'
T.D. Schlum. - 5824'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WORKOVER
East Poplar Unit No. 5

July 19, 1955
Moved in pulling machine and rigged up. Mixed Zeogel, Baroid and salt with salt water. Mud weight 10.2#, viscosity 45. Killed well with same.

July 20, 1955
Pulled tubing out of hole. Ran tubing back, with Baker full bore cementing tool and D. R. Latching plug. Set Baker full Bore packer at 5643' above B-1 Zone to test casing for leak. Pressure up to 2700#, held pressure for 20 minutes. No leak about B-1 Zone. Run in two singles 61' and reset packer at 5704'. Pumped in B-1 and B-2 Zones. Run in hole to Model "D" packer and set D. R. Latching plug at 5775' below RKB. Pulled up 15' and set full bore packer at 5760'. Pressured up to 3000#. D. R. plug held OK. Pulled out two singles and reset full bore packer at 5699' to test casing from packer to D. R. plug. Pressured up to 3000# and held for 15 minutes, casing OK from 5699' to 5775'.

July 21, 1955
Displaced mud out of hole down to 5681', with oil. Circulated until returns were clean oil. Set Baker full bore retrievable cementer at 5646' to squeeze B-1 and B-2 Zones at (5556' to 5664') (5674' to 5681'). Broke formation down with 10 barrels of oil. Maximum break down pressure 2600#. Followed oil with 10 barrels of hyflo mixture 1600#. Followed hyflo mixture with 10 barrels slurry (50 sacks Slo-set cement, deisel 10 bbls.) and tracer material. Formation took 6 barrels of slurry. Maximum squeeze pressure 3000#. Released packer and reversed out 4 barrels of slurry. Wash down to bottom (5775'). Pulled full bore packer up to 5620'.

July 22, 1955
Ran tubing to bottom (5775'). Lane Wells attempted to log well through tubing but could not get down. Pulled tubing out of hole. Lane Wells logged well to check where tracer material was in formation (see log). Ran tubing back in hole to 5646'.

July 23, 1955
Set full bore packer at 5646' and swabbed well. Swabbed out 33.18 barrels clean oil and 27.81 barrels BWPH salt water. Released packer and reset at 5702' below bottom of B-2 Zone and swabbed to recheck D. R. plug for leak. Swabbed tubing down, no leak indicated. Released tool and reset at 5646' and continued swabbing.

July 24, 1955
Swabbed well 9 hours, swabbed 146.49 barrels total fluid, 85 percent water.

July 25, 1955
Displaced water with oil. Tested tool to squeeze. Tool would not hold. Came out of hole and repaired tool. Ran tubing back in hole.

July 26, 1955
Displaced water with oil down to 5772'. Pulled up to 5646' and set Baker full bore packer above B-1 and B-2 Zones (5556' to 5664') (5674' to 5681').

Broke formation down with 7 barrels oil. Maximum break down pressure 2700#. Released packer and pump in 12 barrels slurry. (50 sacks slo-set cement and deisel) followed with 3 barrels diesel. Closed Baker full bore packer and squeezed out 32 sacks cement. Reversed out 18 sacks cement. Maximum squeeze 4200#. Pressured up to 1000# on casing and tubing and shut in for 24 hours.

July 27, 1955
Washed down to bottom 5775'. Pulled up to 5621' and set Baker full bore cementer. Swabbed out 18 barrels fluid. Fluid level down to approximately 4800'.

July 28, 1955
Swabbed at rate of 16.00 barrels per hour, 10 percent water. Fluid level down approximately 2000'. Acidized B-1 and B-2 Zones (5656' to 5664') (5674' to 5681') with 1000 gallons Dowell XF-37W-9. Spotted 22 barrels of acid in tubing. Set Baker full bore packer at 5621' and started displacing acid into formation. Maximum pressure 2600#. Minimum pressure 0#. Maximum pump injection rate 6 BPM. Job complete at 5:30 P.M. Spent acid to surface in 30 minutes. Flowed open flow at rate of 48 barrels per hour, 50 to 60 percent water. Chlorides 79,000 PPM. Put well on 12/64" choke. Flowed 12 barrels fluid, choke plugged overnight.

July 29, 1955
Moved rig off and put well on test. Flowed 180 barrels at various choke size. Choke plugging continuously.

July 30, 1955
Flowed 152 barrels fluid, 52 percent water, on various choke size. Choke plugging continuously.

July 31, 1955
Flowed 535 barrels fluid, 75 percent water on 24/64" choke.

August 3, 1955
Flowed 243 barrels fluid, 56 percent water on 20/64" choke.

August 4, 1955
Flowed 400 barrels fluid 63 percent water on 18/64" choke.

August 15, 1955
Top Baker packer 5775'. Top of D. R. Latching plug 5772'. Displaced oil with salt water, pulled 2 3/8" tubing out of hole to remove Baker full bore packer. Ran tubing as follows:

183 joints 2 3/8" tubing	5620.00'
2 subs	18.17'
1 joint 2 3/8" tubing	30.49
Below RKB	11.34
Seating nipple	1.00
Bottom of tubing	5681.00

Seating nipple approximately 3500', (58 Dub + single and 2 subs) C Zone blanked off with Baker D. R. plug. No left latch on sub and 2 3/8" tubing collar up to fish.

WORKOVER HISTORY NO. 2

August 21, 1957

Lease and Well No.: East Poplar Unit Well No. 5
Field: East Poplar County: Roosevelt State: Montana
Well Location: C SW SW Section 2, T28N, R51E

Status Prior to Present Job:
Date Completed: July 23, 1952
Date of Last Workover: August 4, 1955
T.D.: 5824' PBTD: 5775'
Producing Zones: Madison Perforations - "B-1" (5656'-5664') and "B-2" (5674'-5681').
Cumulative Production: "B-1" and "B-2" Zones - 284,705 bbls. of oil and 168,263 bbls. of water.
Latest Test: Pumping 347 BFPD, 83% water (59 BOPD, 238 BWPD).

Justification for Workover:
Run retrievable packer with Otis choke nipple, set between "B-1" and "B-2" Zones. Swab test each zone individually to check water cut and communication between zones. Type of squeeze subsequent to communication check.

Summary of Workover:

8-4-57 5824' TD - Moving in pulling unit to check for communication between the "B-1" and "B-2" Zones and squeeze.

8-5-57 5775' TD - Pulled rods and tubing. Ran tubing in hole with Baker Model "B" full bore packer. Set full bore packer below "B-2" Zone perforation 5684' to test casing and DR plug. Pressured up to 1200# psi on tubing. Would not hold. Reset packer at 5685' and 5716' with same results. DR plug leaking, set packer at 5716' and swabbed to test tank for 1 hour. Recovered 24 bbls. fluid, 90% water. Set packer above perforations, pressured casing annulus with 2000# to test tubing, held ok.

8-6-57 5718' PBTD - Pulled tubing to run Baker Model "N" cast iron bridge plug. Ran Baker junk basket. Set Baker cast iron bridge plug with Wireline, Inc. Top of plug at 5725'. Dumped 1 1/4 sacks Slo-set cement on top of plug. Ran tubing with Baker full bore packer. Set packer at 5686', below "B-2" perforation. Pressured up to 2000 psi on tubing to test cast iron bridge plug, held ok. Re-set packer at 5652' above "B-1" perforation. Pressured up to 2000 psi on annulus to test casing, held ok. Re-set tool between "B-1" and "B-2" Zone perforations at 5666' to check for communication. Test indicated no communication between zones. Preparing to swab "B-2" for water cut tests.

8-7-57 5718' PBTD - Swabbed "B-2" Zone 10 hours. First 4 hours, water cut was 100% water. Water decreased to 83% at end of swab test.

8-8-57 5718' PBTD - Swabbed "B-2" Zone at rate of 400 BFPD, 90 to 96% water. Pulled Otis side door choke with White Wireline Service. Ran separation tool.

Workover Summary continued

8-9-57: 5718' PBTD - Swabbed "B-1" Zone 5656'-5664' for 21 hours, continued at rate of 456 BFPD, 98% water. Released packer and reset above "B-1" perforation. Tested packer and separation tool, held ok.

8-10-57: 5718' PBTD - Made trip with tubing to remove Otis separation tool and dressed packer. Squeezed "B-1" and "B-2" Zones perforations (5656-5664' and 5674'-5681') with 75 sacks regular cement mixed with 15 barrels diesel oil, Broke formation with 1200# psi. Ran 5 gallons Hy-flo mixed with 5 barrels oil ahead of cement. Squeezed 65 sacks out in formation. Maximum squeeze pressure 3000# psi, released pressure, held ok. Reversed out 10 sacks. Reset tool and pumped 1.75 barrels of oil into formation and shut well in. Job complete at 5:20 P.M., 8-10-57.

8-11-57: 5718' PBTD - Preparing to swab.

8-12-57: 5718' PBTD - Swabbed 10 hours, recovered 22 barrels tubing displacement, 38 barrels formation fluid. Last hour, swab rate was 5 BFH, 90% water.

8-13-57: 5718' PBTD - Swabbed 2 1/2 hours. Recovered 32 barrels fluid, 90-95% water. Made trip with tubing to remove packer.

8-14-57: 5718' PBTD - Ran rods. 2" x 1 1/2" x 16' pump. Will test today.

8-15-57: 5718' PBTD - 78% water. No test.

8-16-57: 5718' PBTD - On a 24 hour test, pumped at rate of 167 BFPD, 70% water (50 BOPD, 117 BWPD).

8-17-57: 5718' PBTD - No test, water cut 67%.

8-18-57: 5718' PBTD - Pumped 167 BFPD, 68% water (54 BOPD, 113 BWPD).

8-19-57: 5718' PBTD - On a 4 hour test, pumped at rate of 175 BFPD, 54% water (81 BOPD, 94 BWPD).

8-20-57: 5718' PBTD - On 2 hour test, pumped at rate of 179 BFPD, 42% water (75 BWPD, 104 BOPD). This is the workover potential test, to drop from report.

1. Final Perforations: "B-1" Zone (5656'-5664') and "B-2" Zone (5674'-5681')

2. Final PBTD: 5718'

3. Initial Potential After Workover: Pumped 179 BFPD, 42% water (104 BOPD, 75 BWPD).

4. Geologic Name of Producing Zone: "B-1" and "B-2" Zones of Madison Formation.

Workover Summary Continued

5. Down Hole Equipment:

Tubing Record: 184 jts. 2 3/8", 4.70#, J-55, 8rd. thd., R-2, American Class 2 tubing.

Below RKB	11.34'
Top jt. 2 3/8"	31.09'
183 jts. 2 3/8"	5620.57'
Seating Nipple	1.34'
Bottom of tubing	5664.34'

Rod Record:

60 - 5/8" rod
40 - 3/4" plain
42 - 3/4" scraper
6' x 3/4" scraper sub
2" x 1 1/2" x 16' Axelson pump with top hold down.

WORKOVER HISTORY NO. 2

August 21, 1957

SUMMARY OF WORKOVER

8-4-57 5824' TD - Moving in pulling unit to check for communication between the "B" Zones and squeeze.

8-5-57 5775' TD - Pulled rods and tubing. Ran tubing in hole with Baker Model "B" Full bore packer. Set full bore packer below "B" Zone perforation 5684' to test casing and DR plug. Pressured up to 1200# psi on tubing. Would not hold. Reset packer at 5685' and 5716' with same results. DR plug leaking, set packer at 5716' and swabbed to test tank for 1 hour. Recovered 24 bbls. fluid, 90% water. Set packer above perforations, pressured casing annulus with 2000# to test tubing, held ok.

8-6-57 5718' PBTD - Pulled tubing to run Baker Model "N" cast iron bridge plug. Ran Baker junk basket. Set Baker cast iron bridge plug with Wireline, Inc. Top of plug at 5725'. Dumped 1 1/4 sacks Slo-set cement on top of plug. Ran tubing with Baker full bore packer. Set packer at 5686', below "B" Zone perforation. Pressured up to 2000 psi on tubing to test cast iron bridge plug, held ok. Pressured up to 2000 psi on annulus to test casing, held ok. Reset tool between "B" Zone perforations at 5666' to check for commmunication. Test indicated no communication between zones. Preparing to swab "B" Zone for water cut tests.

8-7-57 5718' PBTD - Swabbed "B" Zone 10 hours. First 4 hours, water cut was 100% water. Water decreased to 83% at end of swab test.

8-8-57 5718' PBTD - Swabbed "B" Zone at rate of 400 BFPD, 90 to 98% water. Pulled Otis side door choke with White Wireline Service. Ran separation tool.

8-9-57 5718' PBTD - Swabbed "B" Zone 5656'-5664' for 21 hours, continued at rate of 456 BFPD, 98% water. Released packer and reset above "B" Zone perforation. Tested packer and separation tool, held ok.

8-10-57 5718' PBTD - Made trip with tubing to remove Otis separation tool and dressed packer. Squeezed "B" Zones perforations (5656'-5664' and 5674'-5681') with 75 sacks regular cement mixed with 15 barrels diesel oil. Broke formation with 1200# psi. Ran 5 gallons Hy-flo mixed with 5 barrels oil ahead of cement. Squeezed 65 sacks cut in formation. Maximum squeeze pressure 3000# psi, released pressure, held ok. Reversed out 10 sacks. Reset tool and pumped 1.75 barrels of oil into formation and shut well in. Job complete at 5:20 P.M., 8-10-57.

8-11 thru 19-57: Swabbing and testing.

8-20-57 5718' PBTD - on 2 hour test, pumped at rate of 179 BFPD, 42% water (75 BWPD, 104 BOPD). This is the workover potential test, to drop from report.

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August, 1973

WELL HISTORY AND WORKOVER NO. 3

OF MOUNT ROSKER UNIT NO. 3

Name and No. of Lease: Mark Rosker Unit No. 5

Field: Mark Rosker Unit County: Roosevelt State: Montana

Well Location: C SW NE Section 2, T28N, R51E

DRILLING HISTORY AND BASIC DATA:

Date Completed: July 23, 1952 Date Of Last Workover: August, 1957

T.D.: 5924' P.B.D.: 5710' Perforations: 5554-5564' and 5574'-5624'

Cumulative Production: 'A' & 'B' 656,053 BO 652,657 BW 'C' & McCown 18,061 BO, 1,359 BW

Latest Test: Pumping 100% Water

WORKOVER HISTORY AND WORKOVER:

Tubing and rods were changed on this well and after it was put back on pump it pumped 101% water. Prior to the tubing and rod change it pumped at the rate of 1.1 BOPH 56 BOPD 113 BWPD 75% W.C., Chlorides were checked and found to be much lower than normal for the B Zone. This indicates that the C Zone is communicating with the B Zone. Either behind the pipe or the bridge plug set at 5725' has gone way.

SCHEDULE OF WORKOVER:

8-10-73 5718' PBTD Preparing to move in pulling unit.

8-11-73 5718' PBTD Prepairing to test for communication.
Moved in and rigged up pulling unit. Pulled rods and tubing.

8-12-73 5718' PBTD Shut In waiting to cement.
Ran spring in hole with Model "B" packer. Tagged bottom at 5711' and then set packer at 5703'. Fell continued to blow out annulus indicating leak above packer. Shut In - Will squeeze Monday A.M.

8-13-73 5718' PBTD Prepairing to squeeze
Left S.I. Sunday.

8-16-73 3715' PBTD Preparing to squeeze casing leak.
Spotted 2 sacks of gel on top of bridge plug and pulled packer to 3[illegible]' and set. Fell dieved up the annulus. Pinpointed casing leak at 3[illegible]'. (Interval 3[illegible].) Set Baker retrievable bridge plug at 3250' - Attempted to set packer to test bridge plug. Lost packer. Came out of hole with tubing and left 2 joints of tubing and packer in hole. Went back in hole and screwed into tubing. Shut in overnight.

8-17-73 3715' PBTD Preparing to squeeze.
Tested bridge plug to 2000 PSI. Annulus flow increased indicating tubing leak. Pulled tubing. Tightened collars. Ran new packer and tubing in hole. Washed bridge plug. Tubing or packer leaking. Came out of hole. Went in hole pressuring tubing with Dowell truck. Found 5 washed out collars. Tested bridge plug to 2000 PSI. Held OK. Shut in overnight.

8-18-73 3715' PBTD Preparing to drill out cement.
Spotted 2 sacks of sand on top of bridge plug. Set packer at 2950'. Pressured annulus to 1000 PSI and est. injection rate of 2 BPM, 2400 PSI. Squeezed with 25 sacks of neat cement and 75 sacks of neat cement plus 0.1% retarder added. Cleared tubing of cement and staged (with 2 bbls. left in casing) in 10 to 45 min. intervals for 4 hours. Increased pressure to 3800 PSI, Held. Bled back 1/4 bbl. and repressured to 3800 PSI with 1/4 bbl. Released packer and circulated out under pressure to 3040'. Reset packer at 2720' and shut in overnight with 1000 PSI on tubing.

8-17-73 3715' PBTD Preparing to drill out cement. Tagged top of cement at [illegible]. Tagged top of cement at 3050'. Pulled packer. Started in hole with sand line drill to drill up cement. Unable to get below 1200' (O.D. of drill = 4-3/8" x 28'). Ran 1700' of tubing with packer. No indication of tight spot (O.D. of packer = 4-3/4" x 6'). Indicates pipe is buckled. Pulled pressure and tubing longer. Set tubing anchor and pulled 40,000 lbs. strain on 5-1/2" casing. Did not move casing. Shut in overnight to get drilling equipment.

8-18-73 3715' PBTD Preparing to run rods. Moved in and rigged up drilling equipment. Drilled hard cement from 3050' to 3187' and circ. hole on top of sand over bridge plug. Pressure tested leak to 1000 PSI, held OK. Circ. sand out to top of bridge plug. Shut in overnight.

8-19-73 3715' PBTD Pump Testing
Mid. trip with bit to pick up retrieving head. Hooked up bridge plug and came out of hole. Ran pump & tubing string and put well to pumping.

8-[illegible]-73 3715' PBTD Pump Testing
Pumping 100% Water

ARCO Oil & Gas Company

Final Perforations:	5656-5564' and 5674-5681' (Unchanged)
Final PBTD:	5718' (Unchanged)
Geologic Name Of Producing Zone:	B-1 & 2 Of Madison Formation (Unchanged)

Casing leak repaired - Workover Successful

December, 1973

EAST POPLAR UNIT NO. 5

WORKOVER HISTORY NO. 3

Lease and Well No.: East Poplar Unit No. 5

Field: East Poplar Unit County: Roosevelt State: Montana

Well Location: C SW SE Section 2, T28N, R51E

STATUS PRIOR TO CURRENT JOB:

Date Completed: July 23, 1952 Date Of Last Workover: August, 1973

T.D.: 5823' PBTD: 5719' Perforations: 5656-5668' and 5674-5682'

Cumulative Production: C & McKeown Zone 10,061 BO 1,549 BW B-1 & 2 657,292 BO 663,193 BW

Latest test: 8-27-73 137 BFPD 12 BOPD 125 BWPD 91% BS&W

CURRENT STATUS FOR WORKOVER:

In August of 1973 a casing leak developed at 3187' and was repaired. Prior to the casing leak the well was producing at the rate of 151 BFPD 36 BOPD 115 BWPD 76% BS&W and the latest test indicates 137 BFPD 12 BOPD 125 BWPD 91% BS&W. This well has probably been contaminized by the water from the casing leak and either an emulsion block or a water block has developed. In an effort to break this block the well should be treated with 500 gallons of acid, inhibitor and solvent.

NARRATIVE OF WORKOVER:

11-26-73 5720' PBTD Preparing to acidize the B-1 & B-2 Zones. Initiated as follows: Pressured tubing to 650 PSI with down hole pump. Pumped 500 gallons of 15% HCL with 10% U-66 solvent added down annulus. Caught pressure with 69 bbls. pumped. Pressure increased from 0-1100 PSI with 10 minutes the same throughout job. Overflushed acid with 35 bbls. frac. fluids. Total load 149 bbls.

Maximum Injection Rate	1/2 BPM	Maximum PSI	1100
Minimum Injection Rate	1/3 BPM	Minimum PSI	1000
Average Injection Rate	1/4 BPM	Average PSI	1050
Immediate S.I. PSI	1000		
15 Min. S.I. PSI	900		

Shut in with acid on formation.

12-11-73	5713' PBTD Rig will be pumping. After 16 Hrs. P.M. 72 - 7 65 - 71
12-18-73	5718' PBTD Pumping Load Fluid Recovered 85 Bbls. Load - Left to Recover 60 Bbls.
12-29-73	Pumping Load Fluid Recovered 60 Bbls. - Total Load Used Recovered
12-30-73	5718' PBTD - Pumping No Test
12-31-73	5718' PBTD - Pumping No Test
1-1-74	5718' PBTD Pumping - No Test
1-2-74	5718' PBTD Pumping 24 Hr. Test Pumped 223 BFPD 189 BWPD 34 BOPD 85% W.C.
1-5-74	5718' PBTD Pumping 24 Hr. Test Pumped 218 BFPD 181 BWPD 37 BOPD 83% W.C.
1-6-74	5718' PBTD - Pumping No Test
1-7-74	5718' PBTD - Pumping No Test
1-8-74	5718' PBTD - Pumping No Test Power Off
1-9-74	5718' PBTD Pumping - No Test
1-10-74	5718' PBTD Pumping 24 Hr. Test 215 BFPD 174 BWPD 41 BOPD 81% W.C.
1-11-74	5718' PBTD Pumping - No Test
1-12-74	5718' PBTD Pumping - No Test
1-13-74	5718' PBTD Pumping - No Test
1-14-74	5718' PBTD Pump Testing 24 Hr. Test Pumped 20.16 - 225 BFPD 40 BOPD 185 BWPD 82% WATER.
	Turnover Potential - Report To Be Dropped

1½" pump
80% eff = 200 BFD

WORKOVER RECAP:

Final Perforations:	5656-5664' and 5674-[illegible]' [illegible]
Final PBTD:	5718' Unchanged
Geological Name Of Producing Zone:	B-1 & B-2 Zones of the Madison Formation Unchanged
Workover Potential:	225 BFPD 40 BOPD 185 BWPD 82% W.C. Workover Successful

EAST POPLAR UNIT NO. 5

WORKOVER HISTORY NO. 5

Lease and Well No. East Poplar Unit NO. 5

Field: East Poplar Unit County: Roosevelt State: Montana

Well Location: C SW SW Section 2, T28N, R51E

STATUS PRIOR TO PRESENT JOB:

Date Completed: July 23, 1952 Date of Last Workover: 12-26-73

T.D.: 5824' PBTD: 5718' Perforations: 5656'-64' &5674'-81'

Cumulative Production: C & McGowan 18,061 BO 1,549 BW B-1 & 2 846,665 BO 1,896,697 BW

Latest Test: 6-1-92 9 BO 351 BW 97⅛ BS&W

JUSTIFICATION FOR WORKOVER:

This well has a casing leak at 4'. It is proposed to repair the casing leak and put the well back on production.

SUMMARY OF WORKOVER:

6-19-92 MIRUPU P.O.H. with rods and tubing. Water flowing into 5½" casing at 4'.

6-20-92 Pick up 5½" casing spear, rig up Dia-Log and run a rattle shot to 99'. Try to back off casing. Spear backed off. Screw into spear. P.O.H. tighten spear and weld to 1 joint. R.I.H. run rattle shot to 99'. Backed casing off at 38'. P.O.H. picked up condition #2 casing. Screw into stub, land and cut off casing. Pack off and put on casing head.

6-21-92 Pick up Model R Packer. Hydrotest tubing in hole. Shut down waiting on pressure truck.

6-22-92 Sunday no work.

6-23-92 Test casing to 500# get injection rate on 5½" annulus. Pump 1/4 BPM @ 500#. P.O.H. Pick up retrievable BP. Set BP at 5470', set packer at 5409'. Pressure test BP to 525#. P.O.H. with packer. Dump 2 sacks sand on BP.

6-24-92 Rig up HWOCO. Get injection rate ½ BPM @ 400#. Pump 175 sacks neat cement and 100 sacks with 2% calcium chloride 9/10 BPM @ 300#. Final shut in 400#. Shut in waiting on cement.

6-25-92 Pick up BP and fishing tool. T.I.H. circulate sand off BP. Fish BP and P.O.H. pick up tubing, anchor and S.N. T.I.H. with tubing and rods. Hang on. Rig down.

27 P

CLI-16

File
E.P.U. # 5

BOTTOM HOLE PRESSURE SURVEY

Date July 27, 1952

Company Murphy Corporation Field East Poplar Unit Lease and Well No. 5 Unit

Location C SW SW 2-28N-51E County Roosevelt State Montana

WELL DATA:

Elevation: 2114 KB Datum Point: 5796

Formation: Mississippian Perforation: open hole

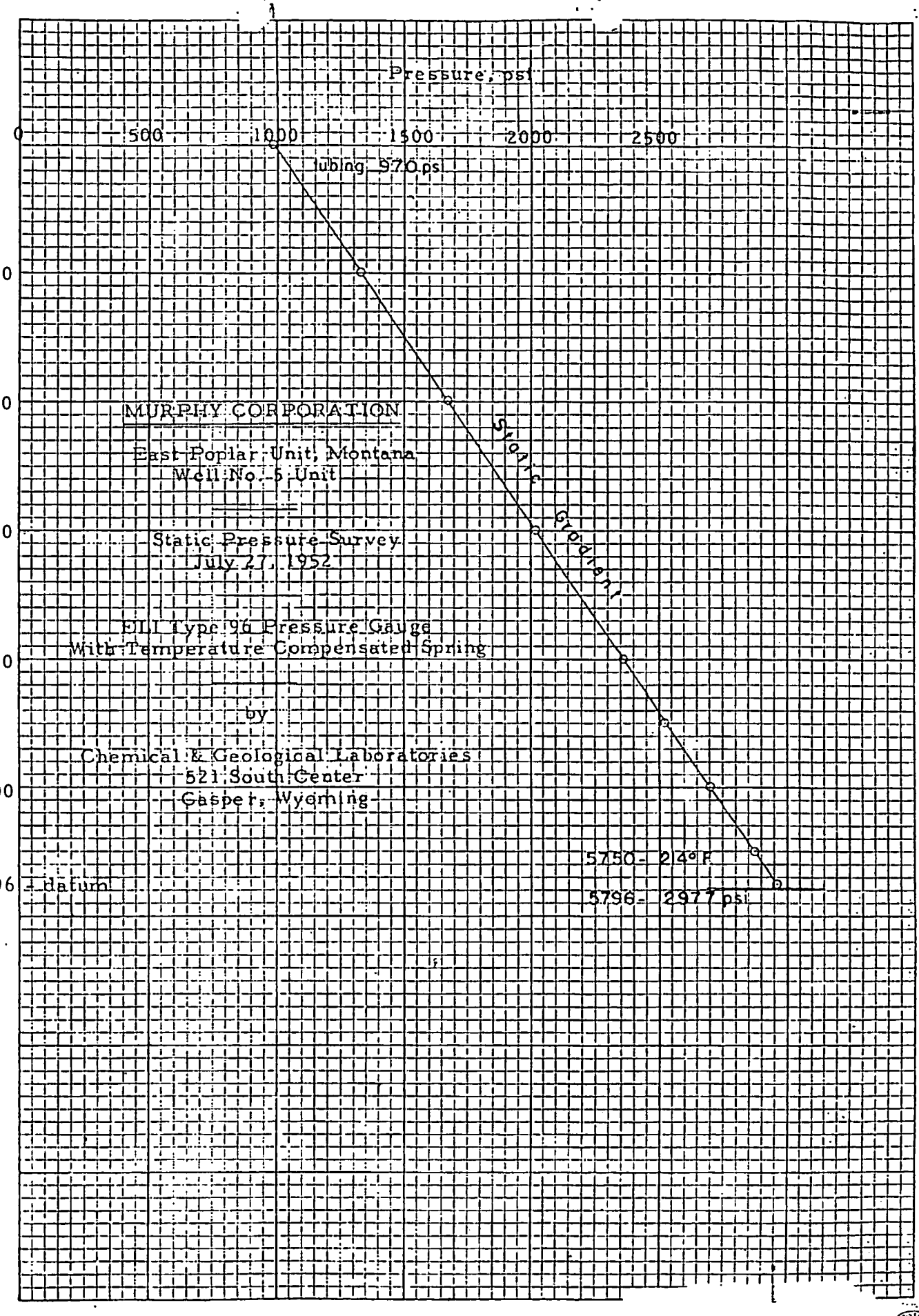
T. D.: 5824 Tubing Press: 970 psi

Casing: 5½" OD @ 5818 Casing Press: - - - -

Tubing: 2" EUE @ 5775

Depths	Extension Inches	Pressure	Gradient #/100'	Additional Information
Top Hole	1.205	971 psi		
			35.2	
1000	1.680	1323		
			34.5	
2000	2.145	1668		
			34.6	
3000	2.610	2014		
			34.3	
4000	3.070	2357		
			34.4	
4500	3.300	2529		
			34.2	
5000	3.530	2700		
			34.4	
5500	3.760	2872		
			35.6	
5750	3.880	2961		
5796		2977 (extrapolated)		

Remarks: Temperature @ 5750 - 244°F.


Pressure, psi
0
500
1000
1500
2000
2500
tubing 970 psi
1000
2000
3000
4000
5000
5796 - datum
Depth - feet
MURPHY CORPORATION
East Poplar Unit, Montana
Well No. 5 Unit
Static Pressure Survey
July 27, 1952
ELI Type 96 Pressure Gauge
With Temperature Compensated Spring
by
Chemical & Geological Laboratories
521 South Center
Casper, Wyoming
5750 - 214° F
5796 - 2977 psi
DATA SHEET 0
NO. 700-10
CHARLES BRUNING COMPANY, INC.
10 x 10 to the inch.

CLI-18

BOTTOM HOLE PRESSURE SURVEY

(Static)

Date August 27, 1952

Company Murphy Corporation Field East Poplar Unit Lease and Well No. 5

Location C SW SW 2-28N-51E County Roosevelt State Montana

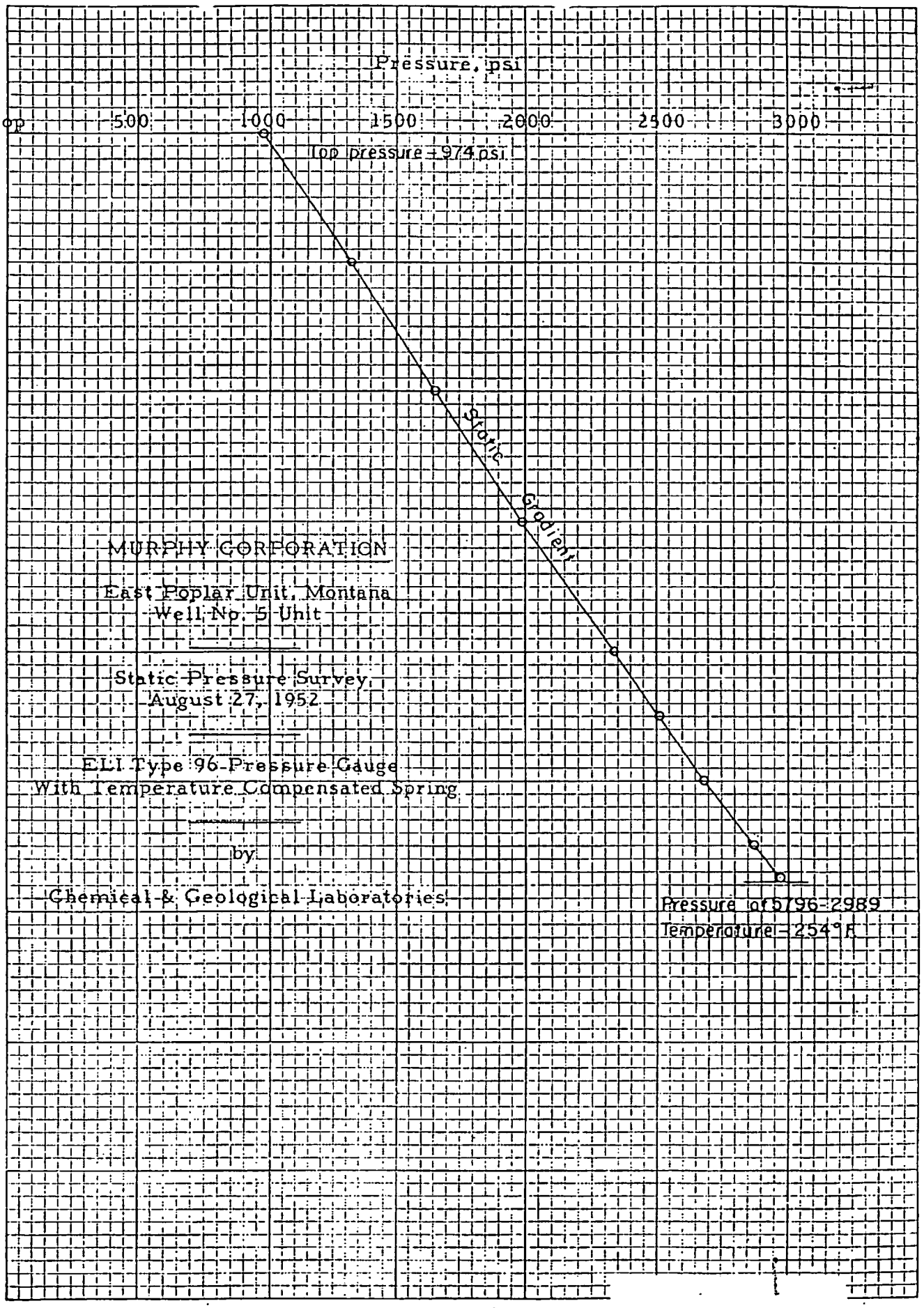
WELL DATA:

Elevation:	2114 KB	Datum Point:	5796
Formation:	Mississippian	Perforation:	open hole
T. D.:	5824	Tubing Press:	1000 psi
Casing:	5½" OD @ 5818	Casing Press:	850 psi
Tubing:	2" EUE @ 5775		

Depths	Extension Inches	Pressure	Gradient #/100	Additional Information
Top Hole	1.210	974 psi		
1000	1.675	1321	34.7	
2000	2.120	1652	33.1	
3000	2.575	1992	34.0	
4000	3.035	2334	34.2	
4500	3.265	2505	34.2	
5000	3.500	2681	35.2	
5500	3.750	2866	37.0	
5750	3.890	2970	41.6	
5796		2989 (extrapolated)		

Remarks:

Temperature @ 5750 - 254°F.
Water in bomb diaphragm.
All measurements from D. F.


Pressure, psi
Top
500
1000
1500
2000
2500
3000
Top pressure = 974 psi
1000
2000
3000
4000
5000
5796
Depth, feet
Static Gradient
MURPHY CORPORATION
East Poplar Unit, Montana
Well No. 5 Unit
Static Pressure Survey,
August 27, 1952
ELI Type 96 Pressure Gauge
With Temperature Compensated Spring
by
Chemical & Geological Laboratories
Pressure at 5796 = 2989
Temperature = 254° F
DATA SHEETS
NO. 700-10
CHARLES BRUNING COMPANY, INC.
10 x 10 to the inch.

CLI-16
PRAIRIE PUBLISHING CO.—42085

BOTTOM HOLE PRESSURE SURVEY
(Static)

Date March 25, 1953

Company Murphy Corporation Field East Poplar Unit Lease and Well No. 5

Location C SW SW 2-28N-51E County Roosevelt State Montana

WELL DATA:

Elevation: 2114 KB Datum Point: 5796

Formation: Mississippian Perforation: open hole

T. D.: 5824 Tubing Press: 999

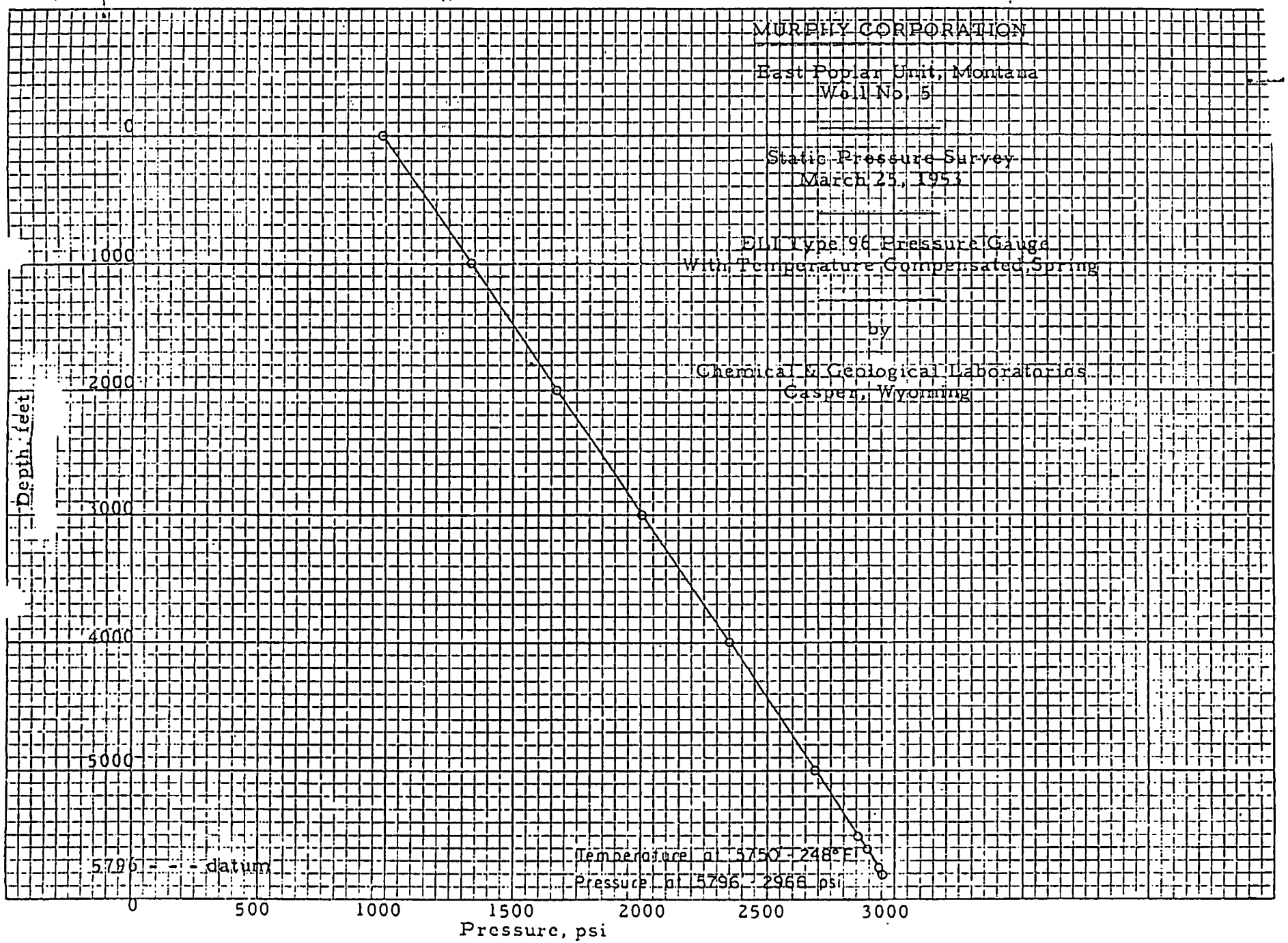
Casing: 5½" OD @ 5818 Casing Press: - -

Tubing: 2" EUE @ 5775

Depths	Extension Inches	Pressure	Gradient #/100'	Additional Information
Top Hole	1.294	999 psi		
			33.6	
1000	1.749	1335		
			33.7	
2000	2.214	1672		
			33.6	
3000	2.669	2008		
			33.9	
4000	3.134	2347		
			34.0	
5000	3.575	2687		
			34.3	
5300	3.715	2790		
			35.0	
5500	3.809	2860		
			35.0	
5600	3.856	2895		
			36.0	
5750	3.929	2949		
5796		2966	extrapolated	

Remarks: Shut in 36 days.
All measurements from K.B.
Temperature @ 5750 - 248°F.

10 x 10 to the inch



CL1-16

BOTTOM HOLE PRESSURE SURVEY
(Flowing)

Date August 29, 1952

Company Murphy Corporation Field East Poplar Unit Lease and Well No. 5

Location C SW SW 2-28N-51E County Roosevelt State Montana

WELL DATA:

Elevation: 2114 KB Datum Point: 5796

Formation: Mississippian Perforation: open hole

T. D.: 5824 Tubing Press: 525 psi

Casing: 5½" OD @ 5818 Casing Press: - - - - -

Tubing: 2" EUE @ 5775

Depths	Extension Inches	Pressure	Gradient #/100	Additional Information
Top Hole	0.530	467 psi		
			34.7	
1000	0.995	814		
			34.9	
2000	1.465	1163		
			34.6	
3000	1.930	1509		
			34.2	
4000	2.390	1851		
			34.2	
5000	2.850	2193		
			37.5	
5750	3.200	2474		
5796		2491		extrapolated

Remarks: Well flowing on 8/64" choke at 211 BOPD.
Uncorrected gas volume, 3,084 CF/day.
GOR = 14.6
Temperature @ 5796 - 254°F.
Water in diaphragm of bomb.
All measurements from D. F.

CLI-16
PRAIRIE PUBLISHING CO.—42085

BOTTOM HOLE PRESSURE SURVEY
(flowing)

Date August 29, 1952

Company Murphy Corporation Field East Poplar Unit Lease and Well No. 5

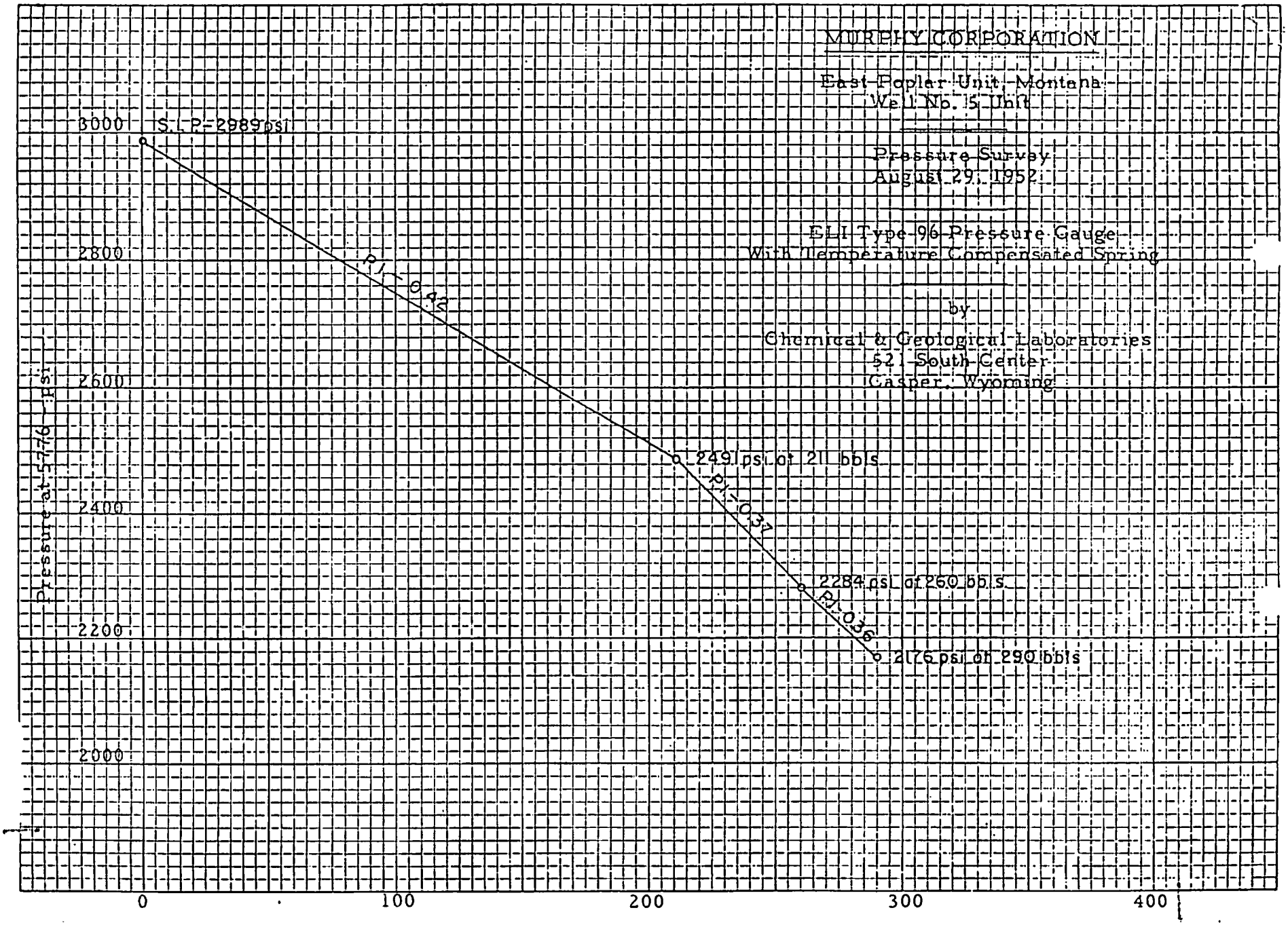
Location C SW SW 2-28N-51E County Roosevelt State Montana

WELL DATA:

Elevation:	2114 KB	Datum Point:	5796
Formation:	Mississippian	Perforation:	open hole
T. D.:	5824	Tubing Press:	425 psi
Casing:	5½" OD @ 5818	Casing Press:	- - - -
Tubing:	2" EUE @ 5775		

Depths	Extension Inches	Pressure	Gradient #/100'	Additional Information
Top Hole	0.290	287 psi		
			34.8	
1000	0.755	635		
			34.5	
2000	1.220	980		
			34.6	
3000	1.685	1326		
			34.2	
4000	2.145	1668		
			34.2	
5000	2.605	2010		
			34.4	
5750	2.950	2268		
5796		2284		

Remarks: Well flowing on 10/64" choke at 260 BOPD.
Uncorrected gas volume, 3,688 CF/day.
GOR = 14.2
Temperature @ 5796 - 254°F.
Water in diaphragm of bomb.
All measurements from D. F.



CLI-16

BOTTOM HOLE PRESSURE SURVEY
(Flowing)

Date August 29, 1952

Company Murphy Corporation Field East Poplar Unit Lease and Well No. 5

Location C SW SW 2-28N-51E County Roosevelt State Montana

WELL DATA:

Elevation: 2114 KB Datum Point: 5796

Formation: Mississippian Perforation: open hole

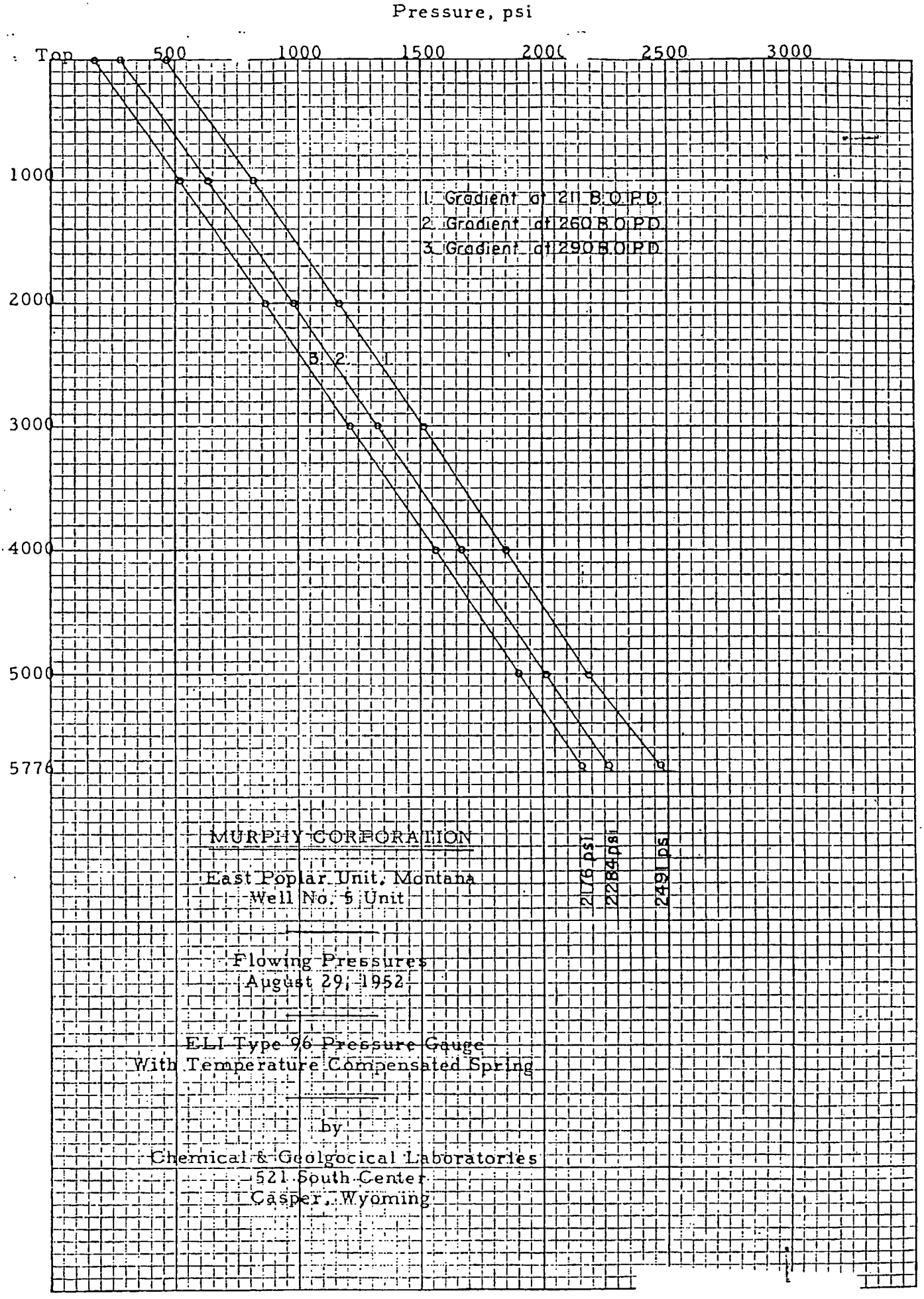
T. D.: 5824 Tubing Press: 275 psi

Casing: 5½" OD @ 5818 Casing Press: - - -

Tubing: 2" EUE @ 5775

Depths	Extension Inches	Pressure	Gradient #/100'	Additional Information
Top Hole	0.155	187 psi		
			33.9	
1000	0.610	526		
			34.0	
2000	1.065	866		
			34.9	
3000	1.535	1215		
			34.6	
4000	2.000	1561		
			34.5	
5000	2.465	1906		
			33.9	
5750	2.805	2160		
5796		2176		extrapolated

Remarks: Well flowing on 12/64" choke at 290 BOPD.
Uncorrected gas volume, 6,383 CF/day
GOR = 22.0
Temperature @ 5796 - 254°F.
Water in diaphragm of bomb.
All measurements from D. F.



CLI-16

BOTTOM HOLE PRESSURE SURVEY
(Static)

Date October 1, 1952

Company Murphy Corporation Field East Poplar Unit Lease and Well No. 5

Location C SW SW 2-28N-51E County Roosevelt State Montana

WELL DATA:

Elevation: 2114 KB Datum Point: 5796

Formation: Mississippian Perforation: open hole

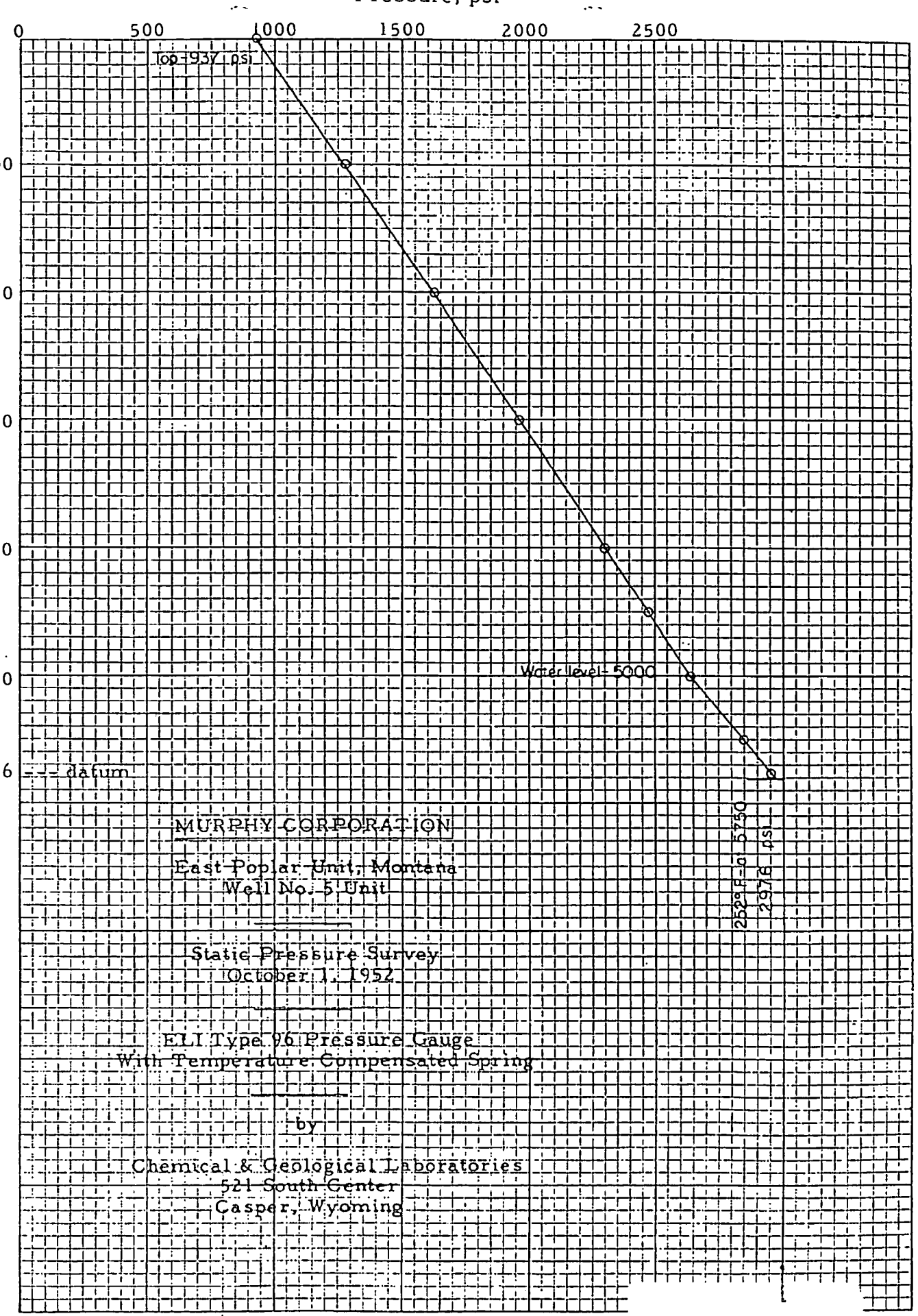
T. D.: 5824 Tubing Press: 937 S.I. (Dead Weight Gauge)

Casing: 5½" OD @ 5818 Casing Press: 862 Flowing (Dead Weight Gauge)

Tubing: 2" EUE @ 5775

Depths	Extension Inches	Pressure	Gradient #/100'	Additional Information
Top Hole		937 psi		
			34.2	
1000	1.630	1279		
			34.3	
2000	2.090	1622		
			33.6	
3000	2.540	1959		
			34.2	
4000	3.000	2300		
			34.2	
4500	3.230	2471		
			33.6	
5000	3.455	2639		
			41.8	
5500	3.735	2848		
			43.2	
5750	3.880	2956		
5796		2976	(extrapolated)	

Remarks: Water in diaphragm of bomb.
Temperature @ 5750 - 252°F.
All measurements from D. F.



CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

August 25, 1952

Murphy Corporation
1125 University Building
Denver, Colorado

Attention: Mr. Gordon Kirby

Subject: Special Core Analysis
East Poplar Unit No. 5 Well
Poplar Area
Roosevelt County, Montana

Gentlemen:

Diamond conventional cores from the Charles and Madison formations in the subject well have been sampled and quick-frozen by a representative of Core Laboratories, Inc. and later analyzed in our laboratory in Williston, North Dakota. Results of the analysis are presented in tabular and graphical form on the attached Special Analysis Core Report. Water base mud was used as the drilling fluid.

Charles formation analyzed from 5509.3 to 5516.0 feet is interpreted to be oil productive. Formation analyzed from 5649.5 to 5659.0 and from 5667.9 to 5692.0 feet is interpreted to be oil productive.

Charles formation analyzed from 5772.0 to 5778.5 feet is interpreted to be essentially nonproductive due to low permeability.

Madison formation analyzed from 5787.0 to 5795.3 feet is characterized by very low porosity and therefore considered to be essentially nonproductive. It is believed that any fluid produced through the one large observed vertical fracture from 5790 to 5794 feet must come from elsewhere in the reservoir.

Recovery estimates for the zones, 5509.3 to 5514.4 and 5650.5 to 5691.2 feet, are given on page one. Only feet with 0.1 millidarcy or more permeability are included in the report.

We hope these data prove beneficial in the evaluation of this well.

Very truly yours,

Core Laboratories, Inc.

J. D. Harris

J. D. Harris,
District Engineer

JDH:ma

FORM F-11A

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS

Page 1 of 1
File FL 25-290 S
Well East Poplar Unit No.

CORE SUMMARY AND CALCULATED RECOVERABLE OIL

CORE SUMMARY

FORMATION NAME	Charles	Charles		
DEPTH, FEET	5509.3-5514.4	5650.5-5691.2		
% CORE RECOVERY	100	100		
FEET OF PERMEABLE, PRODUCTIVE FORMATION RECOVERED	5.1	28.7		
AVERAGE PERMEABILITY MILLIDARCYS	Max.: 2.1 90°: 1.1	Max.: 4.7 90°: 0.05		
CAPACITY — AVERAGE PERMEABILITY X FEET PRODUCTIVE FORMATION	Max.: 11 90°: 5.6	Max.: 135 90°: 1.4		
AVERAGE POROSITY, PERCENT	4.6	9.3		
AVERAGE RESIDUAL OIL SATURATION, % PORE SPACE	11.5	7.3		
GRAVITY OF OIL, °A.P.I.	39	39		
AVERAGE TOTAL WATER SATURATION, % PORE SPACE	30.0	62.4		
AVERAGE CALCULATED CONNATE WATER SATURATION, % PORE SPACE	30.0	62.4		
SOLUTION GAS-OIL RATIO, CUBIC FEET PER BARREL (1)	600	600		
FORMATION VOLUME FACTOR—VOLUME THAT ONE BARREL OF STOCK TANK OIL OCCUPIES IN RESERVOIR (1)	1.35	1.35		

CALCULATED RECOVERABLE OIL

{ Prediction dependent upon complete isolation of each division. Structural position of well, total permeable thi of oil zone and drainage area of well should be considered.

BY NATURAL OR GAS EXPANSION, BBLS. PER ACRE FOOT (2)	44	45		
INCREASE DUE TO WATER DRIVE, BBLS. PER ACRE FOOT	100	103		
TOTAL AFTER COMPLETE WATER DRIVE, BBLS. PER ACRE FOOT (3)	144	148		

Core Laboratories, In

J D Harris (JR)

J. D. Harris

NOTE:

(*) REFER TO ATTACHED LETTER.

(1) REDUCTION IN PRESSURE FROM estimated SATURATION PRESSURE TO ATMOSPHERIC PRESSURE.

(2) AFTER REDUCTION FROM ORIGINAL RESERVOIR PRESSURE TO ZERO POUNDS PER SQUARE INCH.

(3) RESERVOIR PRESSURE MAINTAINED BY WATER DRIVE AT OR ABOVE estimated ORIGINAL SATURATION PRESSURE.

(4) NO ESTIMATE FOR GAS PHASE RESERVOIRS.

Location: C SW SW Sec. 2,T29N, R51E
Spacing = 40
Elevation: 2102' Gr. 2114' K.B.
Spudded: 6-13-52
Completed: 7-23-52
TD; 5815' Drlr = 5824' Schl.
Prod. Zones: B-1 (5656-64')
B-2 (5674-81')

Schlumberger Tops

	Depth	Datum	Thickness
Judith River	753	+1361	
Greenhorn	2356	- 242	
Muddy Sd.	2913	- 799	
Dakota Silt	3122	-1008	
Piper Ls	4347	-2233	
Amsdam	4712	-2598	
Heath	4840	-2726	
Otter	5009	-2895	
Kibbey Sd	5142	-3028	
Kibbey Ls	5307	-3193	
Madison	*5400	-3286	
A-1	**5490	-3376	3'
A-2	**5505	-3391	4'
A-3	**5517	-3403	8'
A-4	*5530	-3416	15'
B-1	5656	-3542	8'
B-2	5674	-3560	18'
B-3	**5693	-3579	6'
B-4	**5723	-3609	5'
B-5	*5764	-3650	?
C-1	*5804	-3690	3'
C-2	---	---	---

**Probable prod. Zones (From DST struc-
ural position, etc.
*Shows

Drill Pipe Corrections (Made)
4256 Driller = 4260 SLM (+4')

Coring Intervals:
#1 5460-5501' Rec. 28' A-1
#2 5501-5540' Rec. 20' A-2, 3
#3 5649-5659' Rec. 10' A-4
#4 5659-5701' Rec. 40' B-1, 2 & 3
#5 5770-5800' Rec. 30' C-1
#6 5802-5815' Rec. 13' C-1

Drill Stem Tests:
DST #1 5506-16' A-2. Op 90 min, SI 15 min. Rec. 279' oil, 279' o & g cut mud, 279' salt wtr. IBHFP 0, FBHFP 375, SIP 2875#, Hydro 3125.
DST #2 5508-28' A-3. Op 4 hrs, SI 15 min. Rec. 3685' fl; 120' cln oil, 558' oil-cut wtr. IBHFP 350, FBHFP 1825, SIP 2975, Hydro 3250.
DST #3 5649-59' B-1. op 1 hr, SI 20 min. Rec. 507' cl oil, 93' blk oil & gas cut mud, 186' bl s.w., 186' clr s.w. IBHFP 0, FBHFP 2000, SIP 2950#, Hydro 3350#.
DST #4 5667-86' B-2. Op 144 min, SI 15 min. Rec. 5265' oil, 31' o & g cut mud, 372' s.w. IBHFP 350, FBHFP 2200, SIP 2950, Hydro 3325.
DST #5 5784-92' B-2. Op 4 hrs, SI 20 min. Rec. 2870' cln oil, 124' m. oil & gas cut. IBHFP 0, FBHFP 1100, SIP 3100, Hydro 3400.
DST #6 5802-15' C-1. Op 4 hrs, SI 15 min. Rec. 3109' cln oil, 186' o & g cut mud. IBHFP 100, FBHFP 1500, SIP 3150, Hydro 3400.

History Subsequent to Completion:

7-22-55: Blanked off C Zone with D. R. Plug

8-20-57: Set bridge plug at 5725'. To produce C Zone will need to drill out bridge plug at 5725' and packer at 5775'.

STIMULATION TREATMENT REPORT

DWL-494-J PRINTED IN U.S.A. — DOWELL DIVISION OF THE DOW CHEMICAL COMPANY

DATE: 12/26/73

WELL NAME AND NUMBER: GPU #5	LOCATION:	CUSTOMER REPRESENTATIVE: M.R. Lorengin	TREATMENT NUMBER:
POOL:	FORMATION: ~~Red River~~ Madison BT-B.2	JOB DONE DOWN: TUBING A ☒ CASING B ☒ ANNULUS C ☐	ALLOWABLE PRESSURE: TBG: CSG: 1200
COUNTY: Roosevelt	STATE: Mont	TYPE OF WELL: OIL A ☒ GAS B ☐ WATER C ☐ INJ. D ☐	
TYPE OF SERVICE:		AGE OF WELL: NEW WELL A ☐ REWORK B ☒	TOTAL DEPTH: 5718 CIRC. BHT.

CASING SIZE	CASING DEPTH	TUBING SIZE	TUBING DEPTH
5½ 15.5		2 ⅞	5669
LINER SIZE	**LINER DEPTH**	**PACKER TYPE**	**PACKER DEPTH**
		—	
OPEN HOLE	**CSG. OR ANRL. VOL.**	**TBG VOLUME**	**STATIC BHT.**
	101.9	21	

CUST. NAME: Murphy Oil Corp.

ADDRESS:

CITY, STATE & ZIP CODE:

REMARKS:

PERFORATED INTERVALS

DEPTH	NO. OF HOLES	DEPTH	NO. OF HOLES	DEPTH	NO. OF HOLES
5654 -	64				
5674 -	81				

FOR CONVERSION PURPOSES 24 BBLS EQUALS 1000 GALLONS

ARRIVED ON LOCATION:

TIME	INJECTION RATE	INJECTION BBLS IN	PRESSURE CSG.	PRESSURE TBG.	SERVICE LOG
					Rig Pump to Casing - Safety Meeting
12:54	2	-	-	-	Start 12 BBl 15% HCL 10% 11-66
1:00	2	12	-	-	12 BBl Pumped start oil Flush
1:25	⅛	69	1200	650	69 BBl Pumped. Press. increase to 1200 psi
3:40	½	149	1200	600	149 BBl Pumped acid displaced Shut down
					MAX Rate ½ MAX PSI 1200
					min " ⅛ min " 1000
					AVG " ¼ AVG " 1200
					Total load 149

TIME LEFT LOCATION	AVG. LIQUID INJ. RATE	ADDED RATE (SOLIDS INCL)	TOTAL FLUID PUMPED	WATER
	¼		149	
MAX. PRESSURE	**AVG. PRESSURE**	**FINAL PUMP IN PRESSURE**	**SHUT IN PRESSURE** IMMEDIATE	15 MINUTES
1200	1200	1200		

PROPS AND LIQUIDS INJECTED

TYPE	SIZE OR PURPOSE	AMOUNT
~~500 gal~~ 15%		
50 gal	11-66 Solvent	

DOWELL LOCATION: DOWELL ENGINEER:

CALL BACK — DATE: CUSTOMER REP. CONTACTED: CUSTOMER CONSIDERED SERVICE ☐ SATISFACTORY ☐ UNSATISFACTORY ☐ UNKNOWN

PROD. BEFORE TREATMENT ☐ TEST ☐ ALLOWABLE — PROD. AFTER TREATMENT ☐ DAYS ☐ TEST ☐ ALLOWABLE

SERVICE ORDER AND JOB TICKET

THE DIA-LOG COMPANY

A BIG THREE INDUSTRY

CALIFORNIA DIVISION
THE DIA-LOG COMPANY
P.O. BOX 4008
WHITTIER, CALIFORNIA 90607-4008
PHONE (213) 946-6346

OIL WELL ELECTRIC LINE SERVICES
P. O. BOX 14103
HOUSTON, TEXAS 77221-4103
PHONE (713) 747-2100

Date 6-19-92 38954

Operating Base Williston

Charge to Murphy Corporation Customer's Order No.

Mailing Address: Street or Box Number City State Zip

Well Name and Number ~~Emerson~~ #5 Location or Field East Poplar Unit County or Parish Roosevelt State Mont

EPU

OFFICE USE ONLY	DESCRIPTION	CHARGE
	Truck No. 296 Skid Unit No. Round Trip Miles 150 Miles Charged for 50	110.00
	1) Ran Dia-Log string shot in attempt to back-off 5½" casing at 96'	420.00
		~~315.00~~
	2) Ran Dia-Log string shot in attempt to back-off 5½" casing at 96'	315.00
	3) 30% discount	(126.00)
	SERVICEMEN'S EXPENSE	
		1240.00

OPERATOR Kelly Buckle

RECEIPT OF THE SERVICES AND/OR EQUIPMENT LISTED ABOVE IS ACKNOWLEDGED AND IT IS HEREBY AGREED THAT THE DIA-LOG COMPANY IS NOT LIABLE FOR DAMAGES, INJURIES OR LOSS OF ANY NATURE RESULTING DIRECTLY OR INDIRECTLY FROM SERVICES PERFORMED OR EQUIPMENT USED, AND FURTHER, THAT THE TERMS AND CONDITIONS SET FORTH ON THE REVERSE SIDE HEREOF ARE ACCEPTED.

ASSISTANT OPERATOR Dean Vahsholtz

CUSTOMER Murphy Corporation

AUTHORIZED AGENT Ray Kelly

Departed From Operating Base: Date 6-19 8:00 A.M. P.M.

Arrived At Location: Date 6-19 10:00 A.M. P.M.

Released From Location: Date A.M. P.M.

Arrived At Operating Base: Date A.M. P.M.

REMARKS

FA—12

PAGE 1 OF ____ PAGES

HALLIBURTON SERVICES

Duncan, Oklahoma 73536

A Division of Halliburton Company

TICKET NO. 184332

FORM 1906 R-11

WELL NO. – FARM OR LEASE NAME	COUNTY	STATE	CITY / OFFSHORE LOCATION	DATE
S East popla- unit	Roosevelt	Mt		10-23-9

CHARGE TO	OWNER	TICKET TYPE (CHECK ONE)	NITROGEN JOB
Murphy oil		SERVICE [X] SALES [ ]	YES [ ] NO [ ]

ADDRESS	CONTRACTOR	1 LOCATION	CODE
	H & H	Williston	535461

CITY, STATE, ZIP	SHIPPED VIA	FREIGHT CHARGES	2 LOCATION	CODE
	Helco	[ ] PPD [ ] COLLECT		

WELL TYPE	WELL CATEGORY	WELL PERMIT NO.	DELIVERED TO	3 LOCATION	CODE
01	02		Location		

TYPE AND PURPOSE OF JOB		ORDER NO.	REFERRAL LOCATION
060	B- 947610		

As consideration, the above-named Customer agrees to pay Halliburton in accord with the rates and terms stated in Halliburton's current price lists. Invoices payable NET by the 20th of the following month after date of invoice. Upon Customer's default in payment of Customer's account by the last day of the month following the month in which the invoice is dated, Customer agrees to pay interest thereon after default at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event it becomes necessary to employ an attorney to enforce collection of said account, Customer agrees to pay all collection costs and attorney fees in the amount of 20% of the amount of the unpaid account. These terms and conditions shall be governed by the law of the state where services are performed or equipment or materials are furnished.

Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's liability and customer's exclusive remedy in any cause of action (whether in contract, tort, product liability, breach of warranty or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, supplies or materials on their return to Halliburton or, at Halliburton's option, to the allowance to the customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indirect, punitive or consequential damages.

PRICE REFERENCE	SECONDARY REF OR PART NO.	LOC	ACCOUNT	DESCRIPTION	UNITS 1 QTY	UNITS 1 MEAS	UNITS 2 QTY	UNITS 2 MEAS	UNIT PRICE	AMOUNT
1.00-117				MILEAGE	80	mi			2.60	208
011-205				Pump Chg (misc)	500-1000 psi				840.	840.
										1048. —

THIS IS NOT AN INVOICE

AS PER ATTACHED BULK MATERIAL DELIVERY TICKET NO. B-

	3314.45
(Less)	-654.37
SUB TOTAL	3708.08

APPLICABLE TAXES WILL BE ADDED ON INVOICE.

IS JOB SATISFACTORILY COMPLETED? ____

IS OPERATION OF EQUIPMENT SATISFACTORY? ____

IS PERFORMANCE OF PERSONNEL SATISFACTORY? ____

Jim Coane

CUSTOMER OR HIS AGENT (PLEASE PRINT)

[signature]

CUSTOMER OR HIS AGENT (SIGNATURE)

WE CERTIFY THAT THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED HAS BEEN COMPLIED WITH IN THE PRODUCTION OF GOODS AND OR WITH RESPECT TO SERVICES FURNISHED UNDER THIS CONTRACT.

Thank you!

[signature] Andy Anderson

HALLIBURTON OPERATOR

HALLIBURTON APPROVAL ____

CUSTOMER

HALLIBURTON SERVICES

A Division of Halliburton Company

BULK MATERIALS DELIVERY AND TICKET CONTINUATION

FOR INVOICE AND TICKET NO. 187332

DATE	CUSTOMER ORDER NO.	WELL NO. AND FARM	COUNTY	STATE
June-23-92		East Poplar Unit	Roosevelt	M.T.

CHARGE TO	OWNER	CONTRACTOR	No.
Murphy Oil USA Inc.	Same		B 947610

MAILING ADDRESS	DELIVERED FROM	LOCATION CODE	PREPARED BY
	Williston N.D.	055860	Martin Davey

CITY & STATE	DELIVERED TO	TRUCK NO.	RECEIVED BY
	Location	52347-6511	[signature]

PRICE REFERENCE	SECONDARY REF. OR PART NO.	CODE L	CODE D	DESCRIPTION	UNITS 1 QTY.	UNITS 1 MEAS.	UNITS 2 QTY.	UNITS 2 MEAS.	UNIT PRICE	AMOUNT
504-043	516.00270			Premium Cement	275	sx			7.66	2106 50
509-406	890.50812			Calcium Chl.	2	sx			32.50	65 00
				Returned Mileage Charge — TOTAL WEIGHT / LOADED MILES / TON MILES						
				SERVICE CHARGE ON MATERIALS RETURNED — CU. FEET						
500-207				SERVICE CHARGE — CU. FEET 275					1.15	316 25
500-306				Mileage Charge — TOTAL WEIGHT 25,850 / LOADED MILES 80 / TON MILES 1,034					.80	827 20

No. B 947610 — CARRY FORWARD TO INVOICE — SUB-TOTAL 3314. 95

THIS IS NOT AN INVOICE

FORM 1911 - R6 REV. 8-85

CUSTOMER

HALLIBURTON SERVICES
A Division of Halliburton Company

BULK MATERIALS DELIVERY AND TICKET CONTINUATION

FOR INVOICE AND TICKET NO. 11733Z

DATE	CUSTOMER ORDER NO.	WELL NO. AND FARM	COUNTY	STATE
June-23-92		East Poplar Unit	Roosevelt	Mt.

CHARGE TO	OWNER	CONTRACTOR	No. B 947610
Murphy Oil USA Inc.	Same		

MAILING ADDRESS	DELIVERED FROM	LOCATION CODE	PREPARED BY
	Williston N.D.	055860	Martin Devey

CITY & STATE	DELIVERED TO	TRUCK NO.	RECEIVED BY
	Location	52347-6511	

PRICE REFERENCE	SECONDARY REF. OR PART NO.	CODE L	CODE D	DESCRIPTION	UNITS 1 QTY.	UNITS 1 MEAS.	UNITS 2 QTY.	UNITS 2 MEAS.	UNIT PRICE	AMOUNT
504-043	516.00270			Premium Cement	275	sx			7.66	2106 50
509-406	890.50812			Calcium Chl.	2	sx			32.50	65 00
				Returned Mileage Charge — TOTAL WEIGHT — LOADED MILES				TON MILES		
				SERVICE CHARGE ON MATERIALS RETURNED				CU. FEET		
500-207				SERVICE CHARGE			275	CU. FEET	1.15	316 25
500-306				Mileage Charge — 25,850 TOTAL WEIGHT — 80 LOADED MILES			1,034	TON MILES	.80	827 20
No. B 947610				CARRY FORWARD TO INVOICE				SUB-TOTAL		3314 1/5

FORM 1911 - R6 REV. 8-85

COST

HALLIBURTON SERVICES

JOB SUMMARY

DIVISION [illegible]

HALLIBURTON LOCATION Williston ND

BILLED ON TICKET NO. 184332

WELL DATA

FIELD East Poplar Unit SEC. ____ TWP. ____ RNG. ____ COUNTY Roosevelt STATE MT

FORMATION NAME ____ TYPE ____

FORMATION THICKNESS ____ FROM ____ TO ____

INITIAL PROD: OIL ____ BPD. WATER ____ BPD. GAS ____ MCFD

PRESENT PROD: OIL ____ BPD. WATER ____ BPD. GAS ____ MCFD

COMPLETION DATE ____ MUD TYPE ____ MUD WT. ____

PACKER TYPE ____ SET AT ____

BOTTOM HOLE TEMP. ____ PRESSURE ____

MISC. DATA ____ TOTAL DEPTH ____

	NEW USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
CASING						
LINER						
TUBING						
OPEN HOLE						SHOTS/FT.
PERFORATIONS						
PERFORATIONS						
PERFORATIONS						

JOB DATA

CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE ~~6-23~~ 6-23-9	DATE 6-23	DATE 6-23	DATE 6-23
TIME 0530	TIME 0700	TIME 10:21	TIME 11:48

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY.	MAKE
FLOAT COLLAR		
FLOAT SHOE		
GUIDE SHOE		
CENTRALIZERS		
BOTTOM PLUG		
TOP PLUG		
HEAD		
PACKER		
OTHER		

PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
690068 Anderson	Cmtr	Williston ND
Sperling	7547 Pump Trk	"
Hoge	52347-L511 Bulk	"

MATERIALS

TREAT. FLUID Cement DENSITY 15.8 LB/GAL-API °

DISPL. FLUID Mud DENISTY ____ LB/GAL-API °

PROP. TYPE ____ SIZE ____ LB. ____

PROP. TYPE ____ SIZE ____ LB. ____

ACID TYPE ____ GAL. ____ %

ACID TYPE ____ GAL. ____ %

ACID TYPE ____ GAL. ____ %

SURFACTANT TYPE ____ GAL. ____ IN ____

NE AGENT TYPE ____ GAL. ____ IN ____

FLUID LOSS ADD. TYPE ____ GAL-LB. ____ IN ____

GELLING AGENT TYPE ____ GAL-LB ____ IN ____

FRIC. RED. AGENT TYPE ____ GAL-LB ____ IN ____

BREAKER TYPE ____ GAL-LB. ____ IN ____

BLOCKING AGENT TYPE ____ GAL-LB. ____

PERFPAC BALLS TYPE ____ QTY. ____

OTHER ____

OTHER ____

DEPARTMENT Cement

DESCRIPTION OF JOB Cement hole in surface Casing

JOB DONE THRU: TUBING ☐ CASING ☐ ANNULUS ☒ TBG/ANN. ☐

CUSTOMER REPRESENTATIVE X [signature]

HALLIBURTON OPERATOR [signature] COPIES REQUESTED ____

CEMENT DATA

STAGE	NUMBER OF SACKS	CEMENT	BRAND	BULK SACKED	ADDITIVES	YIELD CU.FT./SK.	MIXED LBS./GAL.
	275	Premium	G		Neat	1.15	15.8
	100	"	"		2% CC.	1.15	15.8

PRESSURES IN PSI

CIRCULATING ____ DISPLACEMENT ____

BREAKDOWN ____ MAXIMUM ____

AVERAGE ____ FRACTURE GRADIENT ____

SHUT-IN: INSTANT ____ 5-MIN. ____ 15-MIN. ____

HYDRAULIC HORSEPOWER

ORDERED ____ AVAILABLE ____ USED ____

AVERAGE RATES IN BPM

TREATING 5b DISPL. 0 OVERALL 5b

CEMENT LEFT IN PIPE

FEET ? REASON Hole in surface Casing

SUMMARY

PRESLUSH: BBL-GAL. ____ TYPE ____

LOAD & BKDN: BBL-GAL. ____ PAD: BBL-GAL. ____

TREATMENT: BBL-GAL. 50 DISPL: BBL-GAL. ____

CEMENT SLURRY: BBL-GAL. ____

TOTAL VOLUME: BBL-GAL. ____

VOLUMES

REMARKS

See Job Log

FORM 2025-R2

FIELD OFFICE

CUSTOMER Williston Oil Co. LEASE East Poplar Unit WELL NO. 3 JOB TYPE Surface DATE 6-23-9

HALLIBURTON SERVICES

JOB SUMMARY

DIVISION [illegible]

HALLIBURTON LOCATION Williston ND

BILLED ON TICKET NO. 164332

WELL DATA

FIELD East Poplar Unit SEC. ____ TWP. ____ RNG. ____ COUNTY Roosevelt STATE MT

FORMATION NAME ____ TYPE ____

FORMATION THICKNESS ____ FROM ____ TO ____

INITIAL PROD: OIL ____ BPD. WATER ____ BPD. GAS ____ MCFD

PRESENT PROD: OIL ____ BPD. WATER ____ BPD. GAS ____ MCFD

COMPLETION DATE ____ MUD TYPE ____ MUD WT. ____

PACKER TYPE ____ SET AT ____

BOTTOM HOLE TEMP. ____ PRESSURE ____

MISC. DATA ____ TOTAL DEPTH ____

	NEW USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
CASING						
LINER						
TUBING						
OPEN HOLE						SHOTS/FT.
PERFORATIONS						
PERFORATIONS						
PERFORATIONS						

JOB DATA

CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 6-23-9	DATE 6-23	DATE 6-23	DATE 6-23
TIME 0530	TIME 0700	TIME 10:21	TIME 11:45

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY.	MAKE
FLOAT COLLAR		
FLOAT SHOE		
GUIDE SHOE		
CENTRALIZERS		
BOTTOM PLUG		
TOP PLUG		
HEAD		
PACKER		
OTHER		

PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
Gerald Anderson	Comp	Williston ND
Sperling	7547 Pickup	"
Hoya	52347 Cmt Pickup	"

MATERIALS

TREAT. FLUID Cement DENSITY 15.8 LB/GAL-API °

DISPL. FLUID Flosa DENSITY — LB/GAL-API °

PROP. TYPE ____ SIZE ____ LB. ____

PROP. TYPE ____ SIZE ____ LB. ____

ACID TYPE ____ GAL. ____ %

ACID TYPE ____ GAL. ____ %

ACID TYPE ____ GAL. ____ %

SURFACTANT TYPE ____ GAL. ____ IN ____

NE AGENT TYPE ____ GAL. ____ IN ____

FLUID LOSS ADD. TYPE ____ GAL-LB. ____ IN ____

GELLING AGENT TYPE ____ GAL-LB ____ IN ____

FRIC. RED. AGENT TYPE ____ GAL-LB ____ IN ____

BREAKER TYPE ____ GAL-LB. ____ IN ____

BLOCKING AGENT TYPE ____ GAL-LB. ____

PERFPAC BALLS TYPE ____ QTY. ____

OTHER ____

OTHER ____

DEPARTMENT Cement

DESCRIPTION OF JOB Cement Surface and Production Casing

JOB DONE THRU: TUBING ☐ CASING ☐ ANNULUS ☒ TBG/ANN. ☐

CUSTOMER REPRESENTATIVE X [signature]

HALLIBURTON OPERATOR [signature] COPIES REQUESTED ____

CEMENT DATA

STAGE	NUMBER OF SACKS	CEMENT	BRAND	BULK SACKED	ADDITIVES	YIELD CU.FT./SK.	MIXED LBS./GAL.
	215	Prem	G		NEAT	1.18	15.8
	100	"	"		2% CC.	1.18	15.8

PRESSURES IN PSI

CIRCULATING ____ DISPLACEMENT ____

BREAKDOWN ____ MAXIMUM ____

AVERAGE ____ FRACTURE GRADIENT ____

SHUT-IN: INSTANT ____ 5-MIN. ____ 15-MIN. ____

SUMMARY

PRESLUSH: BBL-GAL. ____ TYPE ____

LOAD & BKDN. BBL-GAL. ____ PAD: BBL-GAL. ____

TREATMENT: BBL-GAL. 50 DISPL: BBL-GAL. ____

CEMENT SLURRY: BBL-GAL. ____

TOTAL VOLUME: BBL-GAL. ____

HYDRAULIC HORSEPOWER

ORDERED ____ AVAILABLE ____ USED ____

AVERAGE RATES IN BPM

TREATING 5.0 DISPL. 0 OVERALL 5.0

CEMENT LEFT IN PIPE

FEET 5 REASON Hole in Surface Casing

REMARKS

Surface Job Cont.

FORM 2025-R2

CUSTOMER

HALLIBURTON SERVICES

JOB LOG

FORM 2013 R-2

WELL NO. 5 LEASE East Poplar Unit TICKET NO. 184337

CUSTOMER Murphy Oil PAGE NO.

JOB TYPE Run hole in surface pipe DATE 6-23-92

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	0530							Caliper
	0700							on loc
	1000							Pump + test
	10:21	.5				400		Establish rate of pump in
	10:30	.5	35.8				100	start neat Cement 175 sk = 35.8 b
	11:25	.9	20.4				300	start Cement w/2% CC. 100sk = 20.4 b
	11:48	.9	56.5				400	shut down Close in surface Valve

FIELD OFFICE

HALLIBURTON SERVICES

JOB LOG

FORM 2013 R-2

WELL NO. 5 LEASE East Hobbs Un. 7 TICKET NO. 164556

CUSTOMER Murphy Oil PAGE NO.

JOB TYPE Plug hole in surface pipe DATE 6-23-92

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	0530							On location
	0700							on loc
	1000							Pump water
	10:21	.5				400→		Establish rate of pump in
	10:30	.5	35.8				100	start neat cement 175 sk = 35.8 bbl
	11:15	.9	20.4				300	start cement 4% CC. 100sk = 20.4 bbl
	11:18	.9	56.5				400	shut down close in surface Annulus

CUSTOMER

HALLIBURTON SERVICES
A Division of Halliburton Company

FORM 1908 R-7

WORK ORDER CONTRACT AND PRE-TREATMENT DATA

ATTACH TO INVOICE & TICKET NO. 184332

DISTRICT Williston ND

DATE 6-23-92

TO: HALLIBURTON SERVICES YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICEMEN TO DELIVER AND OPERATE THE SAME AS AN INDEPENDENT CONTRACTOR TO: Murphy Oil (CUSTOMER) AND DELIVER AND SELL PRODUCTS, SUPPLIES, AND MATERIALS FOR THE PURPOSE OF SERVICING

WELL NO. 5 LEASE _____ SEC _____ TWP. _____ RANGE _____

FIELD East Poplar Unit COUNTY Roosevelt STATE MT OWNED BY _____

THE FOLLOWING INFORMATION WAS FURNISHED BY THE CUSTOMER OR HIS AGENT

FORMATION NAME _____ TYPE _____

FORMATION THICKNESS _____ FROM _____ TO _____

PACKER: TYPE _____ SET AT _____

TOTAL DEPTH _____ MUD WEIGHT _____

BORE HOLE _____

INITIAL PROD: OIL _____ BPD, H_2O _____ BPD, GAS _____ MCF

PRESENT PROD: OIL _____ BPD, H_2O _____ BPD, GAS _____ MCF

	NEW USED	WEIGHT	SIZE	FROM	TO	MAX. ALLOW. P.S.I.
CASING						
LINER						
TUBING						
OPEN HOLE						SHOTS/FT.
PERFORATIONS						
PERFORATIONS						
PERFORATIONS						

PREVIOUS TREATMENT: DATE _____ TYPE _____ MATERIALS _____

TREATMENT INSTRUCTIONS: TREAT THRU TUBING ☐ ANNULUS ☐ CASING ☐ TUBING/ANNULUS ☐ HYDRAULIC HORSEPOWER ORDERED _____

Cement 5.5 X 95/8 Annulus from Surface

CUSTOMER OR HIS AGENT WARRANTS THE WELL IS IN PROPER CONDITION TO RECEIVE THE PRODUCTS, SUPPLIES, MATERIALS, AND SERVICES

As consideration, the above-named Customer agrees: THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED

a) To pay Halliburton in accord with the rates and terms stated in Halliburton's current price list. Invoices are payable NET by the 20th of the following month after date of invoice. Upon Customer's default payment of Customer's account by the last day of the month following the month in which the invoice is dated, Customer agrees to pay interest thereon after default at the highest lawful contract rate applicab but never to exceed 18% per annum. In the event it becomes necessary to employ attorneys to enforce collection of said account, Customer agrees to pay all collection costs and attorney fees in the amou of 20% of the amount of the unpaid account.

b) To defend, indemnify, release and hold harmless Halliburton, its divisions, subsidiaries, parent and affiliated companies and the officers, directors, employees, agents and servants of all of them from and agair any claims, liability, expenses, attorneys fees, and costs of defense to the extent permitted by law for:

1. Damage to property owned by, in the possession of, or leased by Customer, and/or the well owner (if different from Customer), including, but not limited to, surface and subsurface damage. The ter "well owner" shall include working and royalty interest owners.
2. Reservoir, formation, or well loss or damage, subsurface trespass or any action in the nature thereof.
3. Personal injury or death or property damage (including, but not limited to, damage to the reservoir, formation or well), or any damages whatsoever, growing out of or in any way connected with or resulti from pollution, subsurface pressure, losing control of the well and/or a well blowout or the use of radioactive material.

The defense, indemnity, release and hold harmless obligations of Customer provided for in this Section b) and Section c) below shall apply to claims or liability even if caused or contributed to by Halliburtor negligence, strict liability, or the unseaworthiness of any vessel owned, operated, or furnished by Halliburton or any defect in the data, products, supplies, materials, or equipment of Halliburton whether the preparation, design, manufacture, distribution, or marketing thereof, or from a failure to warn any person of such defect. Such defense, indemnity, release and hold harmless obligations of Customer sh not apply where the claims or liability are caused by the gross negligence or willful misconduct of Halliburton. The term "Halliburton" as used in said Sections b) and c) shall mean Halliburton, its divisio subsidiaries, parent and affiliated companies, and the officers, directors, employees, agents and servants of all of them.

c) That because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the effectiveness of the produc supplies or materials, nor the results of any treatment or service, nor the accuracy of any chart interpretation, research analysis, job recommendation or other data furnished by Halliburton. Halliburton persons will use their best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton shall not be liable for and Customer shall indemnify Halliburton agair any damages arising from the use of such information.

d) That Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIE OF MERCHANTABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's liability and Customer's exclusive remedy in a cause of action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, suppli or materials on their return to Halliburton or, at Halliburton's option, to the allowance to the Customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indire punitive or consequential damages.

e) That Customer shall, at its risk and expense, attempt to recover any Halliburton equipment, tools or instruments which are lost in the well and if such equipment, tools or instruments are not recovered, Custor shall pay Halliburton its replacement cost unless such loss is due to the sole negligence of Halliburton. If Halliburton equipment, tools or instruments are damaged in the well, Customer shall pay Halliburt the lesser of its replacement cost or the cost of repairs unless such damage is caused by the sole negligence of Halliburton. In the case of equipment, tools or instruments for marine operations, Custor shall, in addition to the foregoing, be fully responsible for loss of or damage to any of Halliburton's equipment, tools or instruments which occurs at any time after delivery to Customer at the landing u returned to the landing, unless such loss or damage is caused by the sole negligence of Halliburton.

f) To waive the provisions of the Deceptive Trade Practices - Consumer Protection Act, to the extent permitted by law.

g) That this contract shall be governed by the law of the state where services are performed or materials are furnished.

h) That Halliburton shall not be bound by any changes or modifications in this contract, except where such change or modification is made in writing by a duly authorized executive officer of Halliburton.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENT.

SIGNED _____ CUSTOMER

DATE 6-23-92

TIME _____ A.M. P.M.

We certify that the Fair Labor Standards Act of 1938, as amended, has been complied with in the production of goods and/or with respect to services furnished under this contract.

FIELD OFFICE

HALLIBURTON SERVICES

A Division of Halliburton Company

FORM 1903 R-7

WORK ORDER CONTRACT AND PRE-TREATMENT DATA

ATTACH TO INVOICE & TICKET NO. 184332

DISTRICT Williston ND

DATE 6-23-92

TO: HALLIBURTON SERVICES YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICEMEN TO DELIVER AND OPERATE THE SAME AS AN INDEPENDENT CONTRACTOR TO: Murphy Oil (CUSTOMER) AND DELIVER AND SELL PRODUCTS, SUPPLIES, AND MATERIALS FOR THE PURPOSE OF SERVICING

WELL NO. 5 LEASE _____ SEC _____ TWP. _____ RANGE _____

FIELD East Poplar Unit COUNTY Roosevelt STATE MT OWNED BY _____

THE FOLLOWING INFORMATION WAS FURNISHED BY THE CUSTOMER OR HIS AGENT

FORMATION NAME _____ TYPE _____

FORMATION THICKNESS _____ FROM _____ TO _____

PACKER: TYPE _____ SET AT _____

TOTAL DEPTH _____ MUD WEIGHT _____

BORE HOLE _____

INITIAL PROD: OIL _____ BPD, H_2O _____ BPD, GAS _____ MCF

PRESENT PROD: OIL _____ BPD, H_2O _____ BPD, GAS _____ MCF

	NEW USED	WEIGHT	SIZE	FROM	TO	MAX. ALLOW. P.S.I.
CASING						
LINER						
TUBING						
OPEN HOLE						SHOTS/FT.
PERFORATIONS						
PERFORATIONS						
PERFORATIONS						

PREVIOUS TREATMENT: DATE _____ TYPE _____ MATERIALS _____

TREATMENT INSTRUCTIONS: TREAT THRU TUBING ☐ ANNULUS ☐ CASING ☐ TUBING/ANNULUS ☐ HYDRAULIC HORSEPOWER ORDERED _____

Cement 5.5 X 9 5/8 Annulus from Surface

CUSTOMER OR HIS AGENT WARRANTS THE WELL IS IN PROPER CONDITION TO RECEIVE THE PRODUCTS, SUPPLIES, MATERIALS, AND SERVICES

As consideration, the above-named Customer agrees THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED

a) To pay Halliburton in accord with the rates and terms stated in Halliburton's current price list. Invoices are payable NET by the 20th of the following month after date of invoice. Upon Customer's default payment of Customer's account by the last day of the month following the month in which the invoice is dated, Customer agrees to pay interest thereon after default at the highest lawful contract rate applicable but never to exceed 18% per annum. In the event it becomes necessary to employ attorneys to enforce collection of said account, Customer agrees to pay all collection costs and attorney fees in the amount of 20% of the amount of the unpaid account.

b) To defend, indemnify, release and hold harmless Halliburton, its divisions, subsidiaries, parent and affiliated companies and the officers, directors, employees, agents and servants of all of them from and against any claims, liability, expenses, attorneys fees, and costs of defense to the extent permitted by law for

1. Damage to property owned by, in the possession of, or leased by Customer, and/or the well owner (if different from Customer) including, but not limited to, surface and subsurface damage. The term "well owner" shall include working and royalty interest owners.
2. Reservoir, formation, or well loss or damage, subsurface trespass or any action in the nature thereof.
3. Personal injury or death or property damage (including, but not limited to, damage to the reservoir, formation or well), or any damages whatsoever, growing out of or in any way connected with or resulting from pollution, subsurface pressure, losing control of the well and/or a well blowout or the use of radioactive material.

The defense, indemnity, release and hold harmless obligations of Customer provided for in this Section b) and Section c) below, shall apply to claims or liability even if caused or contributed to by Halliburton's negligence, strict liability, or the unseaworthiness of any vessel owned, operated, or furnished by Halliburton or any defect in the data, products, supplies, materials, or equipment of Halliburton whether the preparation, design, manufacture, distribution, or marketing thereof, or from a failure to warn any person of such defect. Such defense, indemnity, release and hold harmless obligations of Customer shall not apply where the claims or liability are caused by the gross negligence or willful misconduct of Halliburton. The term "Halliburton" as used in said Sections b) and c) shall mean Halliburton, its divisions, subsidiaries, parent and affiliated companies, and the officers, directors, employees, agents and servants of all of them.

c) That because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the effectiveness of the products, supplies or materials, nor the results of any treatment or service, nor the accuracy of any chart interpretation, research analysis, job recommendation or other data furnished by Halliburton. Halliburton personnel will use their best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton shall not be liable for and Customer shall indemnify Halliburton against any damages arising from the use of such information.

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f) To waive the provisions of the Deceptive Trade Practices - Consumer Protection Act, to the extent permitted by law.

g) That this contract shall be governed by the law of the state where services are performed or materials are furnished.

h) That Halliburton shall not be bound by any changes or modifications in this contract, except where such change or modification is made in writing by a duly authorized executive officer of Halliburton.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENT.

SIGNED _____ CUSTOMER

DATE 6-23-92

TIME _____ A.M. P.M.

We certify that the Fair Labor Standards Act of 1938, as amended, has been complied with in the production of goods and/or with respect to services furnished under this contract.

CUSTOMER

Eqn #5

P + A

5 pages

C.86 → 95

ATTACHMENT "Q"

Form approved. OMB No. 2040-0042. Approval expires 9-30-86

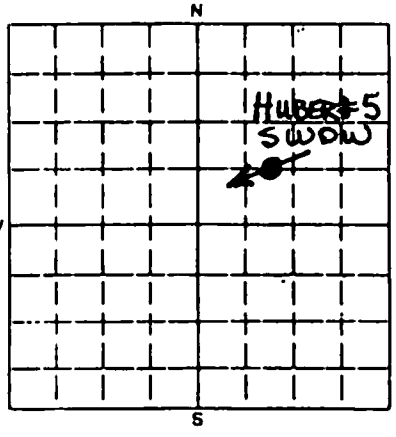
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

ATTACHMENT "Q"

EPA PLUGGING AND ABANDONMENT PLAN

NAME AND ADDRESS OF FACILITY	NAME AND ADDRESS OF OWNER/OPERATOR
Huber No. 5 SWDW P. O. Box 547 Poplar, MT 59255	Murphy Exploration & Production Co. 131 South Robertson St. New Orleans, LA 70112

LOCATE WELL AND OUTLINE UNIT ON SECTION PLAT — 640 ACRES Sec 10



STATE	COUNTY	PERMIT NUMBER
MT	Roosevelt	MT 2779-04278

SURFACE LOCATION DESCRIPTION
NE ¼ OF SW ¼ OF NE ¼ SECTION 10 TOWNSHIP 28N RANGE 51E

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT
Surface Location 1980 ft. from (N/S) ____ Line of quarter section
and 1420 ft. from (E/W) E Line of quarter section

TYPE OF AUTHORIZATION
- [X] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name Huber

WELL ACTIVITY
- [ ] CLASS I
- [X] CLASS II
  - [X] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number 5 SWDW

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
8-5/8"	24#		1028'	12¼"
5 ½"	14 & 17#		7307	7-7/8"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [X] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

RECEIVED
OCT - 6 1995
EPA REGION VIII
DRINKING WATER BRANCH

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inches)	5 ½"	5 ½"	5 ½"	5 ½"	5 ½"**	annulus	
Depth to Bottom of Tubing or Drill Pipe (ft.)	7264	5225	1075*	56	56		
Sacks of Cement To Be Used (each plug)	152	12	35	7	9		
Slurry Volume To Be Pumped (cu. ft.)	166	14	35	8	10		
Calculated Top of Plug (ft.)	6135	5135	975	6	6		
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)							
Type Cement or Other Material (Class III)	H	H	H	H	H		

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (If any)

From	To	From	To
6185'	6187'		
7242'	7264'		

Estimated Cost to Plug Wells
$15,000

* perf 5½" casing at 1075'

** pump cmt down 1" pipe in 5½" annulus

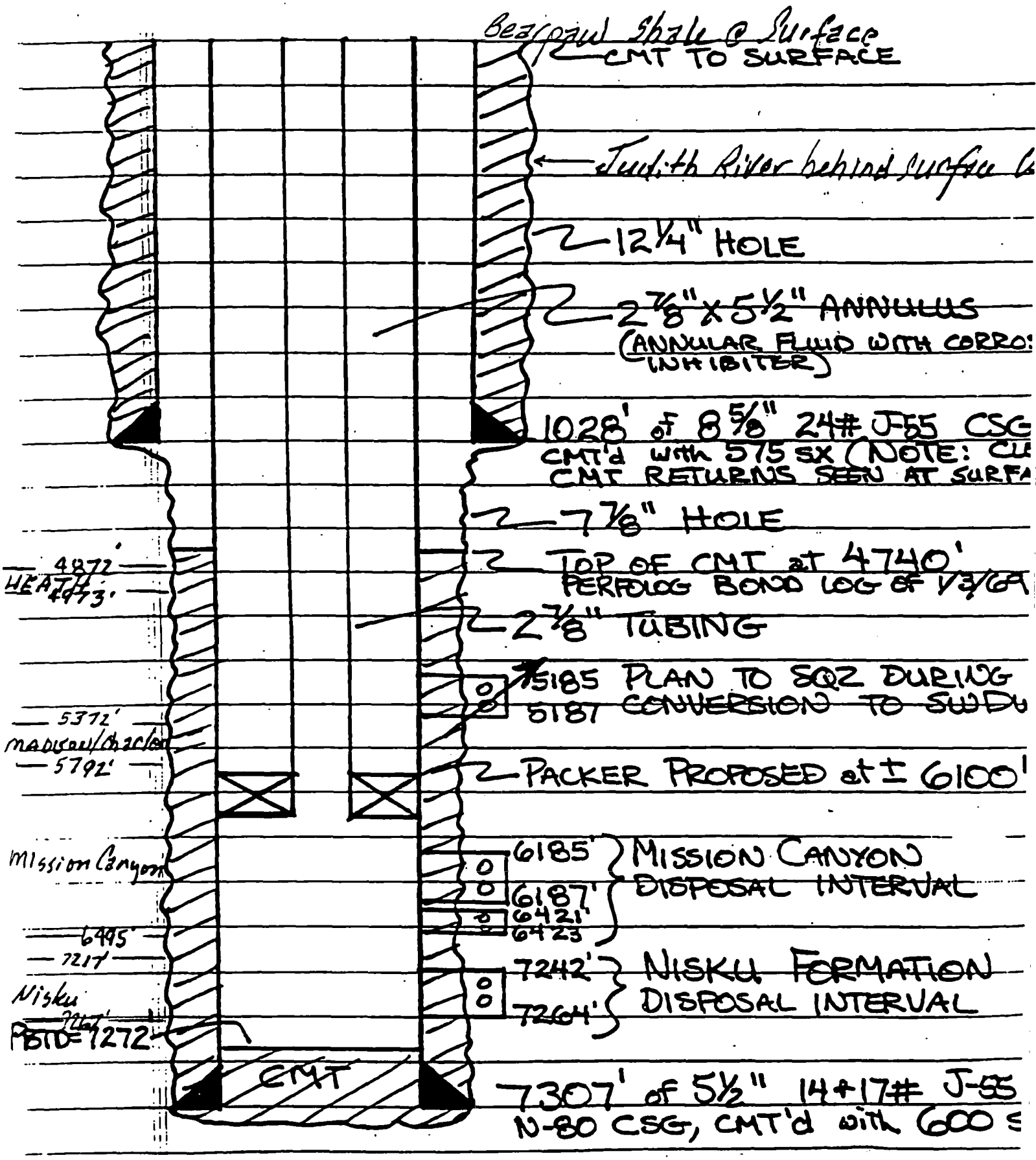
CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)	SIGNATURE	DATE SIGNED
Bruce D. MacArthur Sr. Operations Coordinator	Bruce D MacArthur	October 5, 1995

EPA Form 7520-14 (3-84)

Proposed Construction
Huber No. 5 SWDW



ATTACHMENT C-1 W/I WPB III (3/6/13

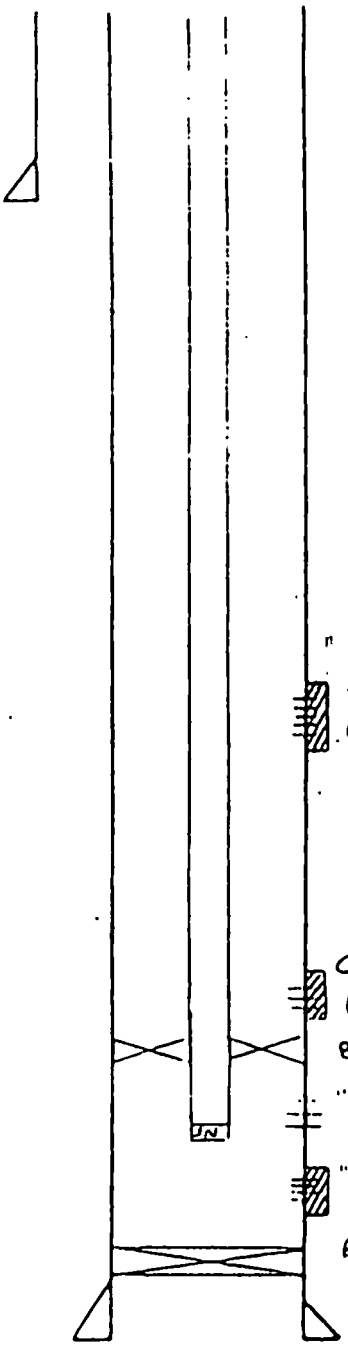
LEASE Huber WELL NO. #1

LOCATION E NE FIELD East Poplar

COUNTY Roosevelt STATE Montana

TD 5776' KB 2104'

DF _____ GL _____



10 3/4" SURF. CSG.
@ 1010' WITH
500 SACKS.
178 jts. 2 7/8" J-55 tbg
88 - 7/8" rods w/ 2" pump
131 - 3/4" rods

Heath
(4858-82') Sqzd w/ 100 SXS (2/75)

TOC @ 4970'

Charles "A"
(5500-20') Sqzd w/ 100 SXS (2/75)

Baker A/L @ 5580'

"B-1" (5608-16') Reperfed (6/77)

"B-2" (5626-38') Sqzd off.

Baker model "K" retainer
@ 5650'

7 " CSG. @ 5753'
W/ 500 SXS.

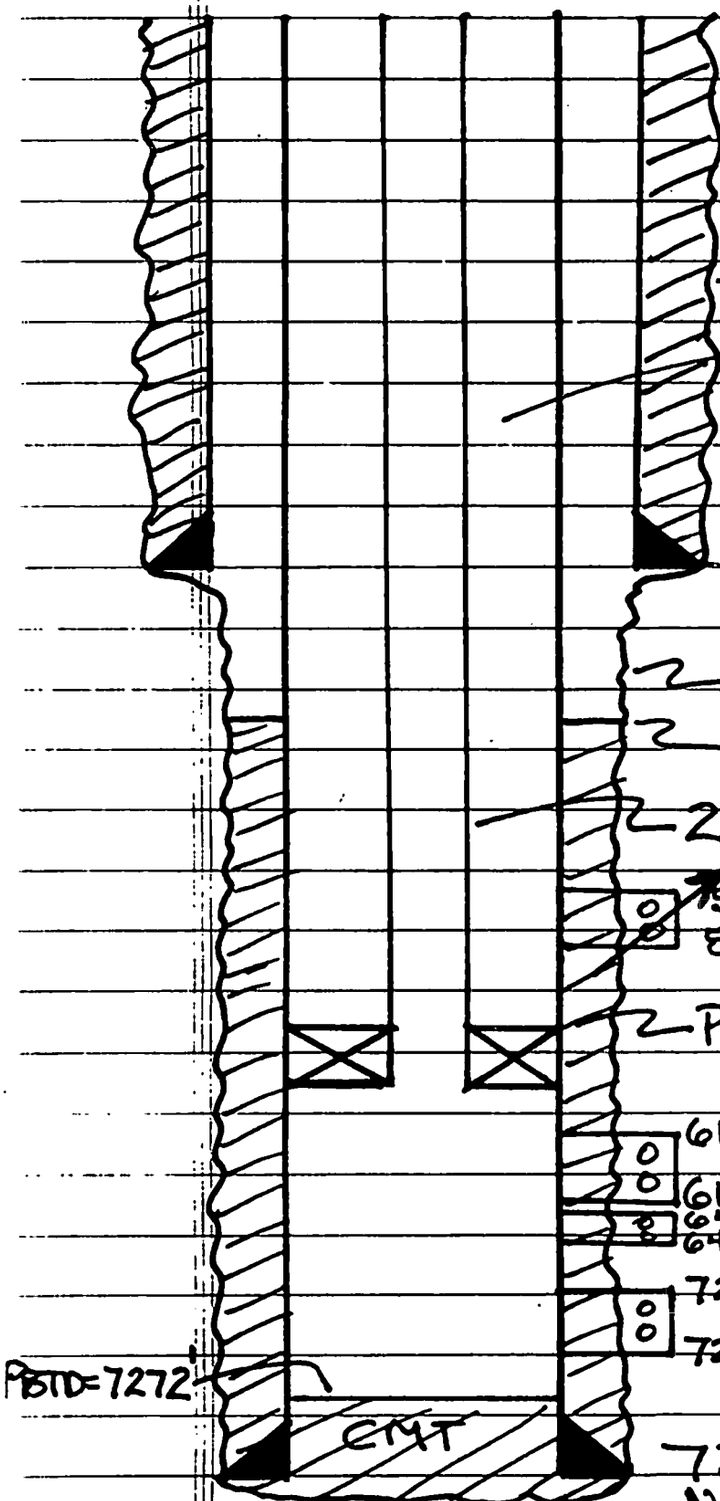
COMPLETION INTERVALS:

WELL HISTORY:

Well completed May 5, 1952 in Madison (5608-17'), (5626-38') & (5500-20').
Sqzd Charles "A" + Heath (2/75) Sqzd "B-1" + "B-2" (6/77) & reperfed "B-1" (5608-16')

REMARKS: 7" csg detail
55 jts. 23 #/ft 2408'
78 jts. 20 #/ft 3350'

ATTACHMENT M-2
MURPHY EXPRO
SWD SYSTEM
HUBER #5 SWDW
SUBSURFACE CONSTRUCTION



WELL WAS ORIGINALLY COMPLETED DURING JAN 1969 IN THE NISKU FORMATION

HUBER #5 SWDW
PROPOSED COMPLETION
EAST POPLAR FIELD
ROOSEVELT CO, MT

BDM 8/95

WELL COMPLETION SKETCHES of ATTACHMENT C-2 "WPB III" (3/6/86)

WELL: HUBER #2 | FIELD: East Poplar | DATE:

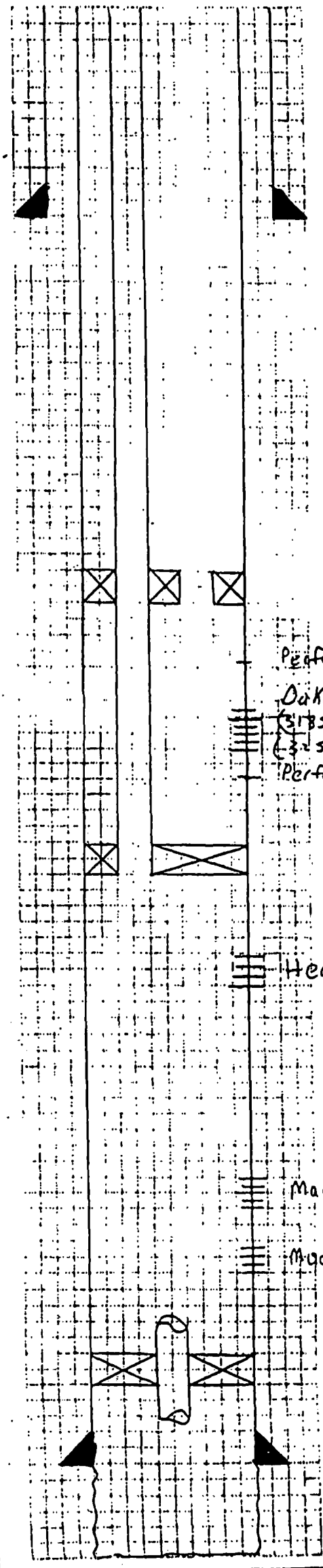
☐ PRESENT COMPLETION ☐ SUGGESTED COMPLETION ☐ ORIGINAL COMPLETION | WELL CLASS:

PERMANENT WELL BORE DATA

SW NW Sec. 10, T28N-R51E
East Poplar Field
Roosevelt County, Montana
TD 5782'
KB 2089'
GL 2078'

Dakota Treatment:
* Fraced w/ 505 BBL W-F10 + 10,000 # 20/40 sand
* Initial injection 1400 BWPD @ 770 #
* (5/8/72) Acidized w/ 7000 gal 7½% Injection after treatment 2650 BWPD @ 960 #

* No record of upper packer but states two strings were used at one time (both 2" string one production and the other injection)
* Pulled 2" Dakota string in 1973 after converting EPU-110XD to WDW in 1973
* No records of production being pulled since it was ran.



DATA ON THIS COMPLETION

10 3/4" @ 1006' w/ 450 SX

8 holes @ 3150 + Sqzd w/ 170 SXS.

4 holes @ 3350' + Sqzd w/ 30 SXS.

Baker Model @ 3410'

Completed Madison (7/52)

Baker Model "D" @ 5660'

7" @ 5776' w/ 300 SX

"C" zone open hole (5776 - 82')